STIC Database Tracking Number: 96101

TO: Patricia Duffy

Location: cm1/8d05/8e12

Art Unit: 1645

Thursday, June 19, 2003

Case Serial Number: 674277

From: Paul Schulwitz

Location: Biotech-Chem Library

CM1-6B06

Phone: 305-1954

paul.schulwitz@uspto.gov

Search Notes

Examiner Duffy,

See attached results.

If you have any questions about this search feel free to contact me at any time.

Thank you for using STIC search services!

Paul Schulwitz Technical Information Specialist STIC Biotech/Chem Library (703)305-1954



THIS PAGE BLANK (USPTO)

STIC-Biotech/ChemLib



From: Sent:

Duffy, Patricia Sunday, June 08, 2003 10:49 AM STIC-Biotech/ChemLib

To: Subject:

Sequence search 09/674,277

Importance:

High

RECEIVED

JUN - 9 2003

(STIC)

Please search SEQ ID NO:1 and 2. Please include and interference and commercial database search. Please print out top 50 hits in each category.

Thanks, Patricia A. Duffy CM1-8D05 AU 1645 703-305-7555

In re: 09/674,277

Searcher:
Phone:
Location:
Date Picked Up: 4/10
Date Completed: 6/19
Searcher Prep/Review:
Clerical:
Online time:

TYPE OF SEARCH:
NA Sequences:
AA Sequences:
Structures:
Bibliographic:
Litigation:
Full text:
Patent Family:
Other

VENDOR/COST (w	here applic.)
STN:	
DIALOG:	
Questel/Orbit:	
DRLink:	
Lexis/Nexis:	
Sequence Sys.:	
WWW/Internet:	
Other (specify):_	

THIS PAGE BLANK (USPTO)

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Ωï DB

Length

Score

Result No.

% Query Match

AX011298 Sequence X11275 E. coli 7.4 AX191728 Sequence AE074613 Escherich AX191727 Sequence AX191725 Sequence AX191725 Sequence AX191725 Sequence AX191753 Shigella AE386526 Shigella AE386526 Shigella AE348706 Shigella AF34403 Escherich D11025 Shigella AF34677 Shigella VI E06635 Shigella VI AF326777 Shigella VI AF326777 Shigella VI AF326777 Shigella VI

AB011549 AX191725 AF074613 AX191727

7395 92077 92077 92721 92721

5612 213494 221618 221851 3500

1000.0 98.7 98.7 98.7 98.7 98.7 98.7 98.7 27.8 27.8 27.8 27.8 27.8 13.5

1181 1166.2 11166.2 11166.2 11166.2 1166.2 1166.2 1163.328.6 328.6 328.6

AX100832 Sequence L47709 Bacillus su 299115 Bacillus su AE003927 Xylella f

66714 6540 10801 23775 213680

Xylella f Mycobacte Mycobacte Pseudomon Pseudomon Nostoc sp Agrobacte

AE007070 MAE021957 MAE498417 FAF035937 FAF003599 MAE008327 PAE008327 PAE009285 PAE

GenCore version 5,1.6

1: 92-0n: * 5: 92-0n: * 6: 92-0n: * 7: 92-0n: * 8: 92-p: * 9: 92-p: * 10: 92-p: * 11: 92-p: * 12: 92-p: * 13: 92-p: 92-p: * 14: 92-p: 92-p: * 15: 92-p: 92-p: * 16: 92-p: 92-p: * 17: 92-p: 92-p: 92-p: * 18: 92-p: 92-p	Database : GenEmbl:* 1: gb_ba:* 2: gb_htg:* 3: gb_in:* 4: gb_om:* 5: gb_om:* 6: gb_om:* 7: gb_ob:*	Post-processing: Minimum Match 0% Maximum Match 100% Listing first 150 summaries	Minimum DB seq length: 0 Maximum DB seq length: 200000000	Searched: 2034040 Seys, 143314026/0 restudes Total number of hits satisfying chosen parameters: 4109280	able: IDENTITY_NUC Gapop 10.0 , Gapext 1.0	Title: US-09-674-277-2 Perfect score: 1181 Sequence: 1 ctgcaggagatggaaaaaaattttacttttttctctgcag 1181	<pre>Run on: June 17, 2003, 15:59:59 ; Search time 2128 45 Seconds (without alignments) 16148.066 Million cell updates/sec</pre>	OM nucleic - nucleic search, using sw model	GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.
--	---	--	--	---	---	--	--	---	--

U52844 Serratia ma AE013034 Thermoana AC065674 Homo sapi AX433280 Sequence AX437703 Sequence

8594 199450

50 49 49

10197 12006 20693

Pyrococcu

Agrobacte

Continuation (20 o 000006 E. coli chr AC023609 Mus muscu AC078885 Mus muscu AF429315 Homo sapi AF498405 Pseudomon AE005627 Escherich AP002567 Escherich Streptomy Homo sapi Pyrococcu Chlorobiu Mycobacte Mycobacte Pseudomon Pseudomon Thermosyn Sequence Pseudomon Streptoco '5 Vibrio ch Mycobacteri Streptomy Sequence Methanoba Mycobacteri AL391406 AAC092541 AAC092541 AAC01028 AAC01028 AAC04745 AAC00805 AAC00805 AAC00805 AAC000469 AAC00469 AAC00469 AAC00469 AAC00469 AAC00469 AAC002469 AAC00246 AF105116 S AE001736 1 AE004175 V AE112861 AE008892 AL627279 AL049497 AX433356 MSGB1551CS AF498420 110000 176195 196146 254993 125020 35576 9297 10991 10148 300600 10940 38859 348450

Pred. No. is the number of results predicted by chance to have a

1	AX432342 Sequence AX073342 Sequence AE012138 Xanthomon AB033991 Bacillus AC099042 Oryza sat AC106104 Rattus no AP003001 Mesorhizo AC026771 Homo sapi AX164174 Sequence AX19704 Sequence AX19704 Sequence AX1055478 Streptomy	linear PAT 06-SEP-2000	subdivision; Enterobacteriaceae; re,F.C. ng enterohemorrhagic escherichia 99; DOMINIQUE THERESE MARI (FR); LAURE SANOFI DIAGNOSTICS (FR) coli"	6; Length 1181; 0; Indels 0; Gaps 0; GCCCATCCCAGCGCTCCAGCTG 60	AAATTCGGGCTGAAAGGATCC 180
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	11000011000	from Patent W GI:9997848	Proteobacteria; gamma subdiva. 1 to 1181) 1 to 1181) 1 sequences for detecting ent. 9955908-A 2 04-NOV-1999; MINIQUE (FR); FRECHON DOMINI CLADDINE (FR); PASTEUR SANOF coation/Qualifiers 0.1181 organism="Escherichia coli" db_xref="taxon:562"	100.0%; Score 1181; DB y 100.0%; Pred. No. 0; rvative 0; Mismatches GATGGAAAAAAGCCAAAATAAAAAATTTTTTTTTTTTTT	TACTCCGTTACCGGAAAACCGCTGAACA
1.0 1.0				ισ	
41. 6 3.5 13952 1 AP019375 AP019375 41. 4 3.5 341880 1 AP019316 AP019316 40. 6 3.4 14428 6 AX019314 AX019415 40. 6 3.4 14345 6 AX019414 AX019415 40. 6 3.4 14345 6 AX019414 AX019415 40. 6 3.4 135000 1 REEGISTA AX019415 40. 6 3.4 135000 1 REEGISTA AX019416 40. 6 3.4 135000 1 REEGISTA AX019416 40. 2 3.4 13500 1 REEGISTA AX019412 AX019414 40. 2 3.4 3.4 3.4 3.4 3.4 3.4 3. 4 3.4 3.4 3.4 3.4 3.4 3.4 3. 4 3.4 3.4 3.4 3.4 3.4 3.4 3. 4 3.4 3.4 3.4 3.4 3.4 3.4 3. 4 3.4 3.4	11111111111111111111111111111111111111	RESULT 1 AX011296 LOCUS DEFINITION ACCESION VERSION VERYWORDS SOURCE ORGANISM	REFERENCE AUTHORS TITLE JOURNAL FEATURES SOULCE BASE COUNT	Query Ma Best Loc Matches	
41.6 3.5 13453 14453 140.6 40.6 3.5 14453 140.6 40.6 3.5 14453 140.6 40.6 3.4 129008 40.6 3.4 129008 640.6 3.4 129008 640.6 3.4 129008 640.6 3.4 129008 640.2 3.4 12008 640.2 3.4 1					
41.6 4.1.6 4.1.4 4.1.5 4.1.4 4.1.4 4.1.4 4.1.4 4.1.5 4.1.4 4.1.5 4.1.4 4.1.4 4.1.5 4.1.4 4.1.6 4.0.6 4					
	5 13952 1 5 17453 1 5 341880 1 6 4 14245 6 6 4 129908 6 6 4 3129908 6 6 4 3129908 6 6 4 3129908 1 6 4 3129908 1 6 4 34293 1 6 4 15704 1 6 4 15704 1 7 4 15704 1 7 4 15704 1	4 158781 2 4 162054 2 4 202726 9 4 203726 9 4 2203 8 4 25118 1 4 265118 6 4 265118 6 3 10206 1 3 10421 1	3 17013 1 3 344290 1 3 346290 1 3 11856 1 11856 1 11872 1 3 11483 1 1 44308 1 2 211258 2 2 211258 2 2 211258 2 2 211258 2 2 211258 2 2 211258 2 2 34496 1 2 2 11148 2 3 3 4 4 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 1755429 6 1755429 6 1755429 6 175542 8 1 1503 8 1 1 125020 9 1 1 100050 1 1 100050 1 1 100050 1 1 100050 1 1 18448 4 8 4 8 4 8 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1 40352 1 1 18507 8 1 654 6 1 1372 1 1 11119 1 1 40051 1 1 40051 1 1 7512 2 1 17512 2 1 173914 6 1

 \sim

셤 à 셤 à 셤 ò g

a

δ

g

ò

ç

g

ò g. 8 g

g

ò

셤

ò

유

ò 셤

ò

```
2791. . 4512.
2791. . 4512.
2791. . 4512.
2791. . 4512.
2791. . 4512.
2791. . 4512.
2791. . 4512.
2792. . 4512.
2792. . 4512.
2792. . 4512.
2792. . 4512.
2792. . 4512.
2792. . 4512.
2792. . 4512.
2792. . 4512. . 4512.
2792. . 4512. . 4512. . 4512.
2792. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. . 4512. 
                                                                                                                                                                                                                                                                                                                                                                                                /translation="Minarhippulmy: HTVSRCPGLVTLSPETFCEQMKWLADNNWRTV TSABLESTFYCGGT-HTMLFLITGLIGKGN VRSRQEGEYSFROGGT-LIADNRSDEVMENROSGLVEHVHTHSHKRWDRLS VRSRQEGEYSHRDCERLIADNRSDEVMENRSEVREMROSGLVEHVHTHSHKRWDRLS VSRAEQCRIMKEDILVGKQCLTEKLGFCSSHLCWPEGYYNRDY INLAGRLGFSYLYTT ERRENGPROSIRIGRISTKEREFSGWLKRRLFYYTTPLFSSVLALHKGPRLPDN" 1595. 2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /trainiation-*MMKILFTESSDIGGGELQALAQWTALQRGGHSVILACRERSKI
APEARRGHUYTEIPERNSLLUESILRIRRIIGEERFDDLVICHSGHDSNIAGLSRLIC
CHRESLYRQKTYITRYTRFELNYLCDEIVVPSSAMMAHLMAEGVRTPVTVICKEFDFD
PALHNERMRPLDLHIRWAASADNVPLIVOVGKLRPRGHERALKTVLYOLKNEGKFFB
WLVVGAREREEYERALRQOTEHIGMSGTOYLMAGALFPLLPVYRIASVVVMPSENERFGM
VLARGSSVSGYPVIASFTGGIPDVIQKNVTGTLLPVGDVSAWTGALRDFLSRFERFMM
ASSARBDIEYRPDIHVRTAQIIVSLAGOARGKONR*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NIVDAMFATASMAVVLMAELALSGPDKISHRIRWIGLEIVEKMAGNINEKVIFLVPHAM
SVDIPAMLMAASGRKMAAMFHRQRINPVDIVWISVRRREGEKLHARNIDGIASEVYRSVR
GGYNGYYLPDODHGFBESERADFATYKATLOVIGRLSRISGARIIPLPEPVDKTHH
LTIHVSPPLAIRQKSDAHIARQINEVVENFVRPHPEQYTWILKLLKTRKEGEEDDY*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation-"MVPPSAVLCYHNEISRQIPVNMKNIRTEFIPRFNLTLCFPRYWM
TWTGIGIICVFAMVPPALRDPLLGKLGMLVGRLGKSARQRALINLSLCFPEYSDKEKE
                           M77039, X02311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="hypothetical protein"
/protein_id="CAA72139.1"
/db_xref="GI:4127814"
                                                                                                                                                                                                                                                                                                                                               /product-"hypothetical protein"
/protein_id="CAA72138.1"
/db_xref="GI:4127813"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="hypothetical protein"
/protein_id="CAA72142.1"
                                                                                                        coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5645. .5820
/note="IS3-like sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/product="MsbB protein"
/protein_id="CAA72141.1"
/db_xref="GI:4127816"
                                                                                                  /organism="Escherichia
                                                                                                                                                       /serotype="0157:H7"
/db_xref="taxon:562"
/clone="pSm7"
                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
D- 97080 Wuerzburg, FRG
Related sequences X97542,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                      /plasmid="po157"
774. .1595
                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4586. .5584
/gene="msbB"
4586. .5584
/gene="msbB"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .>7395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FLPYGEP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                    FEATURES
                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCGTCGAGGTC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Submitted (14-FEB-1997) W. Brunder, Universitaet Wuerzburg,
Institut fuer Hygiene und Mikrobiologie, Josef-Schneider-Strasse 2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTGT 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BCT 07-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           780
                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                            480
                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                              CCTGAACGATAAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGAACGATAAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCGTCGAAGTC
                                                                                                                              TTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACGGTCGCATGCTTCATTATGCAATGCGGCCAGTCGAAACCCGGTGGAATAACCGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGGTGTCCTGACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGTAGGTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATCCATGCCCTC
                        TGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITITICIGGCITCCGGAGCAATITIACITITICICIGCAG 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E.coli 7.4 kb DNA from plasmid pol57.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Y11275.1 GI:4127812
msbB gene; unidentified
Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 7395)
Brunder,W.
Unpublished
2 (bases 1 to 7395)
Brunder,W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Escherichia col:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1141
                        121
                                                                       121
                                                                                                                           481
                                                                                                                                                                             481
                                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 2
EC74PO157/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
```

```
FEATURES
                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δŽ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ğ
                   g
                                                   g
                                                                        δ
                                                                                       g
                                                                                                        ŏ
                                                                                                                        셤
                                                                                                                                          ð
                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                            ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                        à
      /translation-"MNTKMNERWRTPMKLKYLSCTILAPLAIGVFSATAADNNSAIYF
NYAPARDONGSLAABVKFAGSGILEAPHEGGOSQPHITSLEKSLLLYPRVKADDKTP
VQVBARDDNNKILGTLTLYPPSSLPOTIYHLDGVPEGGIDFTPHNGTKKIINVVAEVN
KLSDASGSSIHSHLTNNALVEIHTANGRWYRDIYLPQGPDLEGKMVRFVSSAGYSSTV
FYGDRKVTSKGYNGOWFRGEELENNKITYAQHIWSAELFAHWIVPGLNLV
FYGDRKYTSGKNDIKIGAFGELLHTDIGMLTTP"
                                                                                                                                                                                                                                  2636
                                                                                                                                                                                                                                                                  2576
                                                                                                                                                                                                                                                                                                   2516
                                                                                                                                                                                                                                                                                                                                   2456
                                                                                                                                                                                                                                                                                                                                                                                                    2336
                                                                                                                                                                                                                                                                                                                                                                                                                                     2276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2036
                                                                                                                                                                                                  2696
                                                                                                                                                                                                                                                                                                                                                                  2396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2756
                                                                                                 ö
                                                                                                                                                                                                                                                                                                                   430
                                                                                                                                                                                                                                                                                                                                                                                   550
                                                                                                                                                                                                                                                                                                                                                                                                                    610
                                                                                                                                                                                                                                                                                                                                                                                                                                                      670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       850
                                                                                                                                                                                                                  250
                                                                                                                                                                                                                                                   310
                                                                                                                                                                                                                                                                                  370
                                                                                                                                                                                                                                                                                                                                                    490
                                                                                                                                                  130
                                                                                                                                                                                  190
                                                                                                                 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACA
                                                                                                                           TGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGATAAATTA
                                                                                                                                                         GTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAAT
                                                                                                                                                                                                                                                   TCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAG
                                                                                                                                                                                                                                                                                            GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG
                                                                                                                                                                                                                                                                                                                                                                    CATGACCACCACCACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCACGCCCGGCCCCACCACGAGGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCAT
                                                                                                                TGGAAAAAAAGCCAAAATAAAAATTGCCCCATCCCAGCGCGCTCCAGCTGAAAGTAGGCC
                                                                                                                                                                                                                  GTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                     TAACACATCTCCGCTCATTCCCAGGTGTTCTGTTGCTGACGCAGACGTGCTTCGTATTC
                                                                                                 Gaps
                                                                                                 ö
                                                                                 Length 7395;
                                                                                                 Indels
                                                                                 DB 1;
                                                                                                 3;
                                                                                Score 1166.2;
Pred. No. 0;
0; Mismatches
'db_xref="GI:4127817"
                                                                                                 ;
                                                                                Query Match 98.7%;
Best Local Similarity 99.7%;
Matches 1168; Conservative
                                                         Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                     2335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2155
                                                                                                                                                                 2815
                                                                                                                                                                                                  2755
                                                                                                                                                                                                                                  2695
                                                                                                                                                                                                                                                                                                   2575
                                                                                                                                                                                                                                                                                                                                   2515
                                                                                                                                                                                                                                                                                                                                                                   2455
                                                                                                                                                                                                                                                                                                                                                                                                    2395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2095
                                                                                                                                                                                                                                                                                  311
                                                                                                                                                                                                                                                                                                                                                                                                                                                      611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      731
                                                                                                                  1
                                                                                                                                                  71
                                                                                                                                                                                  131
                                                                                                                                                                                                                  191
                                                                                                                                                                                                                                                   251
                                                                                                                                                                                                                                                                                                                   371
                                                                                                                                                                                                                                                                                                                                                    431
                                                                                                                                                                                                                                                                                                                                                                                   491
                                                                                                                                                                                                                                                                                                                                                                                                                    551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        851
                                                        BASE COUNT
                                                                                                                  à
                                                                                                                                g
                                                                                                                                                  ò
                                                                                                                                                               g
                                                                                                                                                                                 ŏ
                                                                                                                                                                                                셤
                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                  ογ
                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
```

```
2816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2576
                                                                                                                                                          1150
                                                                                                                                                                                    1736
                                                                                                                                                                                                                                                                                                        PAT 15-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       70
                                                                                                                                                                                                                                                                                                                                                                                                 Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAGTAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGGGAGATGTAGGTTTTTTGTCTGACAAT
                          CAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTTTTGTCTGACAAT
                                                                TGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGATAAATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCCGTTACCGGAAAACCGCTGAACAAATTCGGGCTGAAAAGAGAGGATCCGCCGTTATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAAT
                                                                                                        ATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCGTCGAAGTCTGAGGATGGA
                                                                                                                                   ATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCGTCGAAGTCTGAGGATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGAAAAAAGCCAAAATAAAAATTGCCCATCCCAGGGGGGTCCAGCTGAAAGTAGGCC
                                                    AGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTGTCATGGCCACT
                                                                                                                                                           AGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATCATGCCCTCTTTTTTCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 7395;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     and
                                                                                                                                                                                                                                                                                                                                                                                                                                                    composition
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                 gamma subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    图
                                                                                                                                                                                                             DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                Antisense antibacterial cell division
Patent: WO 0149775-A 10 12-JUL-2001;
Avi Biopharma, Inc. (US)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Escherichia coli"
/db_xref="taxon:562"
| 1575 c 1815 g 2076 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1166.2;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                      7395 bp
from Patent W00149775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Biopharma, Inc. (US)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                      AX191728
Sequence 10 from Patent
AX191728
AX191728.1 GI:15209897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 98.7%;
Best Local Similarity 99.7%;
Matches 1168; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                             Escherichia.
1 (bases 1 to 7395)
                                                                                                                                                                                                                                                                                                                                                                        coli.
                                                                                                                                                                                                                                                                                                                                                                                      0011
                                                                                                                                                                                                                                                                                                                                                                        Escherichia
Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                       Iversen, P.L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1929
                        1975
                                                                             1915
                                                                                                                                 1855
                                                                                                                                                                                    1795
                                                                                                                                                                                                                                       1735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2575
                                                                                                       1031
                                                                                                                                                          1091
                                                                                                                                                                                                               1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        311
                                                    971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       급
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         71
                                                                                                                                                                                                                                                                                                                 DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                              RESULT 3
AX191728/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
```

Ŋ

¢

```
/db_xref="G1:3822115"
/translation="ABEQKRPVLTIKRKTEGETPVRSRKTIINVTTPPKWKVKKQKLA
ftranslation="ABEQKRPVLTIKRKTEGETPVRSRKTIINVTTPPKWKVKKQKLA
VLLEDVAQNNIPLSHKLRKALRALKATIRSESYLCAMKAGACRYDTEGYVTEHISQEEEA
YAAARLDKIRRQNRIKAELQAVLDEK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          region precursor"
Protein_id="AAC70071.1"
/db_xref="GI:3822117"
/translation="MRKYIPLVFIFSWPVLCADIHGRVVRVLDGDTIEVMDSRKAVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       translation="MDSETVHGTVRSGVTSVPEAGPLFWKSVDAGWKRQKHGDGLPVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IRLVNIDAPEKKODYGRWSTDMMKSLVAGKTVTVTYFQRDRYGRMLGQVYAPDGMNVN
QFWVRAGAAWVYEQYNTDPVLQNEARQOKRGLWSDADPVPPWIWRHRK"
                                                                                                                                                                                                                                                                                                                                                                       /product="fertility inhibition protein (conjugal transfer
                                                            Sofia, H.J. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YFI3_ECOLI
                                                                                                   University of Wisconsin, 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="L7004"
1658. 1867
/gene="L7004"
/note="55 pct identical (0 gaps) to 66 residues of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        residues of P33693"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      653. .681
/note="predicted sigma 70 promoter; score of 52%"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                628"
                                                                                                                                                                                                                                                                                                            amino acid sequence and P22707"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             kDa protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'note="predicted sigma 70 promoter; score of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           score of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     equal length
                                                          Perna, N.T., Plunkett, G. III,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HPGLTGSSLPEKGLNTATGAAEEGGNEKSSLHYSRDSEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (1 gap) to 23 EXOK_RHIME SW:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           promoter;
                                                                                                                                                           O157:H7
    Acids Res. 26 (18), 4196-4204 (1998)
                                                                                                                                                                               /serotype="0157.H7"
/db_xref="taxon:83334"
/lab_host="Escherichia coli C600"
/plasmid="po157"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1151. .1612
/gene="L7003"
/note="98 pct identical and
                                          2 (bases 1 to 92077)
Burland, V., Shao, Y., Perna, N.T., Plur
Blattner, F.R.
Direct Submission
Submitted (25-JUN-1998) Genetics, Uni
Henry Mall, Madison, WI 53706, USA
Location/Qualifiers
                                                                                                                                                           coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70
                                                                                                                                                                                                                                                                                                               /note="97 pct identical ar
length to FIO1_ECOLI SW:
                                                                                                                                                                                                                                                                                                                                                                                                 /protein_id="AAC70069.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein_id="AAC70070.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="54 pct identical
approx. 269 aa protein E
/codon_start=1
                                                                                                                                                         /organism="Escherichia/strain="EDL933"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
/product="hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sidma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       db_xref="GI:3822116"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1390. .1419
/note="predicted
                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="L7003"
/1151.
                                                                                                                                                                                                                                           1. .561
/gene="finO"
/note="L7001"
                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                698. .949
/gene="L7002"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         L7002"
                                                                                                                                                                                                                                                                                    1. .561
/gene="fino"
                                                                                                                                                                                                                                                                                                                                                                                     repressor)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           698. .949
/gene="L70
    Nucleic
                              9722640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               promoter
                                                                                                                                              SOUTCO
                                           REFERENCE
AUTHORS
                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
  JOURNAL
MEDLINE
                                                                                                                                                                                                                                              gene
                              PUBMED
                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                              FEATURES
                                                                                                                                                                                                  2276
                                                                                                                                                                                                                                                                                                                                                                     2096
                                                                                                                                                                                                                                                                                                                                                                                                                             2036
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACA 910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2396
                                                                                                                              1856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGCCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCGTCGAAGTCTGAGGATGGA 1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGC 1150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           circular BCT 04-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               970
  430
                                                                                                                  550
                                                                                                                                                                       610
                                                                                                                                                                                                                              670
                                                                                                                                                                                                                                                                                                                                           790
                                                                                                                                                                                                                                                                                                                                                                                                  850
                                                                                                                                                                                                                                                                                    CAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCCACCTGAACGAT 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gamma subdivision; Enterobacteriaceae;
1915 ACTGAAGCGGTGACAGCATATCAGACGCCTCAGTCTGCTATATTACTGTCATGGCCACT
                                                                                                                                                                                     TTCACGCCCGCCCCACCACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATA
                                                                                                                                                                                                                                                                                                                                           AAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    971 AGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTGTCATGGCCACT
                                                       GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG
                                                                                                               CATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCAT
                                                                                                                                                                       TAACACATCTCCGCTCATTCCCAGGTGTTCTGTTGCTGACGCAGACGTGCTTCGTATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTTTGTCTGACAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The complete DNA sequence and analysis of the large virulence plasmid of Escherichia coli 0157:H7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 (bases 1 to 92077)
Burland, V., Shao, Y., Perna, N.T., Plunkett, G., Sofia, H.J. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92077 bp DNA circular BCT 04
Escherichia coli 0157:H7 plasmid po157, complete sequence.
AF074613.1 GI:3822114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTCCGGAGCAATTTTACTTTTTTCTCTGCAG 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Escherichia coli 0157:H7
Escherichia coli 0157:H7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Blattner, F.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Escherichia.
                                                                                   2455
                                                                                                                                         2395
                                                                                                                                                                                               2335
                                                                                                                                                                                                                                                       2275
                                                                                                                                                                                                                                                                                                             2215
                                                                                                                                                                                                                                                                                                                                                                     2155
                                                                                                                                                                                                                                                                                                                                                                                                                             2095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1735
 371
                                                       431
                                                                                                               491
                                                                                                                                                                     551
                                                                                                                                                                                                                             611
                                                                                                                                                                                                                                                                                  671
                                                                                                                                                                                                                                                                                                                                         731
                                                                                                                                                                                                                                                                                                                                                                                                 791
                                                                                                                                                                                                                                                                                                                                                                                                                                                         851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 4
AF074613/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                            엄
                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            염
                          셤
                                                                                g
                                                                                                               ò
                                                                                                                                        9
                                                                                                                                                                     ò
                                                                                                                                                                                                                           å
                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
  ô
                                                       å
```

an

ednal

SW

'n

fino

ļn

an

gene

CDS

```
19245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19124 TCGGGATAAAAATCGCGCAGTGCGCGGTCCATGCAGAGACACCTCCCCCACGGGTAACAG 19065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MTDLQQTYYRQVKNPNPVFTPREGAGTLKFCEKLMEKAVGFTSR
FDFAIHVAHARSKGLRRRMPPVLRRRAIDALLQGLCFHYDPLANRVQCSITTLAIECG
LATSAAGKLSITRATRALFSELGLITYQTEYDPLIGCY IPTDITFTPALEABLDV
SEDYVAAARRSRVEWENRLRKKQGLDTLGMDELIAKAWFVRERFRSYQTELKSRGIK
RARARNDAGRERQDIVTLVKRQLTREISEGRFTANREAVKREVERRVERMILSRNRN
YSRLATASP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          71 TGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGATAAATTA 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              131 CTCCGTTACCGGAAAACCGCTGAACAAATTCGGGCTGAAAAGAGGGATCCGCCGTTATCT 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                              % Standard_name="CIS"

/standard_name="CIS"
/standard_name="CIS"
/note="88 pct identical to locus ECCIS accession X12587, required for cis-activation of oriR by the replication initation protein"
/4072. 4080
/note="dna site; 100 pct identical (0 gaps) to locus ECNRIREP at (1682. 1690) accession X02302"
/4084. 4232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="95 pct identical to (0 gaps) 64 residues of a 128 aa protein REPA4 locus ECRSC1 accession V00351"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /standard_name="oriR"
/standard_name="oriR"
/note="89 pct identical to oriR (1094. .1242); minimum segment for replication of E. coli IncFII plasmid NRI ECREPA1 X12776"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATCAAACCGGTACTCAATATCTTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             311 TCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACACCCCCACGGGTAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="96 pct identical amino acid sequence and equal length to REP2_ECOLI SW: P03066"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11 TGGAAAAAAAAAAAAAAAATTGCCCATCCCAGCGCCTCCAGCTGAAAGTAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      568"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 92077;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4169. 4197
/note="predicted sigma 70 promoter; score of
4259. 4453
                                                                                                                                              /product="replication initiation protein"
/protein_id="AAC70076.1"
/db_xref="GI:3822122"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98.7%; Score 1166.2; 99.7%; Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
                                                                                                                               /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /direction-right 4169. .4197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4259. .4453
/gene="L7009"
4259. .4453
/gene="L7009"
                         3040. .3897
/gene="rep2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best_Local Similarity
Matches 1168; Conserv
                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rep_origin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . යු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0032. 3035

Moote-"100 pct identical (0 gaps) to RBS at 641. .644 locus

ECNRIREP accession X02302"
                                                                                                   /protein_id="AAC70072.1"
\d_xref="G1:3822118"
/translation="MEKTKQEMLXQLRRCSSVNTLEKIIHKNRDSLSTSERESFNSAA
DHRLABLITGKLYDBITREIMKYVR"
                                                                                                                                                                                                                                                                                                                                                                                                                /product-"hypothetical protein"
/protein_id-"hac710073.1"
/db_xref-"GI:3822112
/translation-"WKLIFFILIVLITAALLIRIILRSVNOHSPLLWQLHAAGIRTGD
AERILSGGEYDASHLRPERRRRDILLEEVLROAGIPLLRSHDARKLLOWTGEWINTTG
                                                                                                                                                                                                                                                                                                         /note="98 pct identical (0 gaps) to 57 residues of an approx. 200 as protein; plasmid R100 miniplasmid pSM1 ORF 4, TRSW: Q52340"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SSIB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation="MSQTENAVTSSSGAKRAYRKGNPLSDAEKQRLSVARKRASFKEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="91 pct identical (0 gaps) to 24 residues of an approx. 24 aa protein uORF P30REPFIC, accession M16167, translationally coupled to replication initiation protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2473. .2478
/note="100 pct identical (0 gaps) to RBS at 80. .85 locus
ECKNIREP accession X02302"
/gene="cpb2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "note="initiation site; Escherichia coli plasmid R100 si
jene; 99 pct identical to ssiB locus R10SSIB accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      region at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                region at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                //note="98 pct identical amino acid sequence and equal
length to CPB2_ECOLI SW: P03847"
/codon_start=1
                                                              /product="putative hemolysin expression modulating
                                                                                                                                                                          1899. .1927
/note="predicted sigma 70 promoter; score of 56%"
1905. .2243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2754. .2782
/note="predicted sigma 70 promoter; score of 69%"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2439. .2445
/note="100 pct identical (0 gaps) to the -10 2473. .2478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2416. .2421
/note="100 pct identical (0 gaps) to the -35
233. .28 locus ECNRIREP accession x02302"
2439. .2445
  P23870"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="replication initiation protein"

/protein_id="AAC70075.1"

/db_ref="GI:3822121"

/translation="MLGKVQDPFLCSLLLRIVSAGWCD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KVFLEPKYKAMLMQMCHEDGLTQAEVLTALIKSEAQKRCV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'product="CopB protein (RepA2 protein)"
'protein_id="AAC70074.1"
'db_xref="G1:3822120"
72 aa protein HHA_ECOLI SW:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(2240. .2327)
                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
                                                                                                                                                                                                                           1905. .2243
/gene="L7005"
1905. .2243
/gene="L7005"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2973. 3047
/gene="L7007"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="L7006"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2973. .3047
/gene="L7007"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           483. .2737
'gene="cpb2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3040. .3897
/gene="rep2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAQOSPEHRS
                                                                                 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       590185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -10_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -35_signal
                                                                                                                                                                                       promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         promoter
```

gene

CDS

RBS

gene

gene

RBS

BASE COUNT 24693 a 20133 c 23728 g 23523 t	Query Match 98.7%; Score 1166.2; DB 6; Length 92077; Best Local Similarity 99.7%; Pred. No. 0; Matches 1168; Conservative 0; Mismatches 3; Indels 0; Gaps 0;	OY 11 TGGAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCTCCAGCTGAAAGTAGGCC 70	QY 71 TGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGATAAATTA 130	OY 131 CTCGGTACCGGAAACCGCTGAACAAATTCGGGCTGAAAAGGGGTCCGCGTTATCT 190	QY 191 GTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAAT 250	OY 251 ATCAAACCGGTACTCAATATCTTCTGGCGCTGCCTGCCATCATCGGGAGCGTTCCGG 310	QY 311 TCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCACACCCCACGGGTAACAG 370	QY 371 CGTCCCTGTCACATTCTTCTGAATGACATCCCGCCCGCCC	QY 431 GGGCACGCGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTCCGAAGG 490	A91 CATGACCACACACACACACACACACACACACACACACACA	QY 551 TAACACATCICCGCICATICCCAGGIGITCIGICIGACGCAGACGIGCTICGIATIC 610	OY 611 TTCACGCCCGGCCCCACCACCAGCGAAATGATTCCCTTCCATTTCAGTGATA 670	OY 671 CAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGAT 730	OY 731 AAGCGGAACATTGTCTGCTGATGCAGCCTGGGTATGCAGGGGTAACGGTCGCAT 790	QY 791 GGCTTCATTATGCAATGCGGGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCT 850	0Y 851 GACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACA 910	QY 911 CAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTTTTTTTT	Qy 971 AGTGAAGCGGTGACAGCATATCAGACGCTCAGTCCTGCTATATTACTGTCATGCCACT 1030
490	491 18944	TAACACATCTCCGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTC	611 TTCACGCCCCCCCCCCACGAGCCACGCAATTCCCTTCCATCTTCACTGATA						971 AGTGAAGGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTGTCATGGCCACT		1091 AGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGC 1150 18344 AGGAAGGTGAAGGCTGTTCCTGAAGGAATAAAAGTGAAGACATCATGCCCTCTTTTTTTT			LOCUS LOCUS LOCUS DEFINITION Sequence 9 from Patent WOO149775. VECESSION AX191727 VERSION AX191727 VERSION AX191727 VERSION AX191727	S Escherichia coli. ISM Escherichia coli	die oute rateil, miterouge	AL Patent: WO 01 Avi Biopharms S Loca	source 192077 /organism="Escherichia coli" /db_xref="taxon:562"

a ò g ð

```
2589. .3464
/gene="etpc"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                         On Apr 20, 1999 this sequence version replaced gi:3336997.

Location/Qualifiers
1. 92721
/organism="Escherichia coli"
/strain="MLMD 0509952"
/db_xref="taxon:562"
/db_xref="taxon:562"
/plasmid="PO157"
/note="RIMD 0509952 is a strain of enterohemorrhagic E.
coli, EHEC O157:177"
/gin(92527. .92721,1. .2502)
/gene="tagA"
18464 ACTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTGTCATGGCCACT 18405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NTSQPINDLQGSLAAEVKFAQSQILPAHPKEGDSQPHLTSLRKSLLLVRPVKADDKTP
VQVEARDDNNKILGTLTLYPPSSLPDTIYHLDGVPEGGIDFTPHNGTKKIINTVAEVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FYGDRKVTLSVGNTLLFKYVNGQWFRSGELENNRITYAQHIWSAELPAHWIVPGLNLV
IKQGNLSGRLNDIKIGAPGELLLHTIDIGMLTPRDRFDFAKDKEAHREYFQTIPVSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MIVNNYAPLHLKEVMLPTGELLTDMDPGNGGWHSGTMRQRIGKELVSHGIDNANYGLN
STAGLGENSHPYVVAQLAAHNSRGNYANGIQVHGGSGGGGIVTLDSTLGNEFSHEVGH
NYGLGHYVDGFKGSVHRSAENNNSTWGWDGDKKRFIPNFYPSQTNEKSCLNNQCQEPF
                                                                                                                                                                                                                                                                                                                                                                                                                                  AB011549 92721 bp DNA circular BCT 27-APR-1999 Escherichia coli plasmid p0157 DNA, complete sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Makino, K., Ishii, K., Yasunaga, T., Hattori, M., Yokoyama, K., Yutsudo, H.C., Kubota, Y., Yamaichi, Y., Iida, T., Yamamoto, K., Honda, T., Han, C.G., Ohtsubo, E., Kasamatsu, M., Hayashi, T., Kuhara, S. and Shinagawa, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MNTKMNERWRTPMKLKYLSCTILAPLAIGVFSATAADNNSAIYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KLSDASGSSIHSHLTNNALVEIHTANGRWVRDIYLPQGPDLEGKMVRFVSSAGYSSTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Complete nuclectide sequences of 93.kb and 3.3-kb plasmids of an enterohemorrhagic Escherichia coli 0157:H7 derived from Sakai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Escherichia coli
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                                                                   1091 AGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGC
                                                    ATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCGTCGAAGTCTGAGGATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Direct Submission
Submitted (24-FEB-1998) Kozo Makino, Research Institute for
Microbial Diseases, Osaka University, Molecular Microbiology;
yamadooka, 3-1, Suita, Osaka 562, Japan
(E-mail:makinoebkns01.biken.osaka-u.ac.jp, Tel:81-6-879-8318,
Fax:81-6-879-8320)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AB011549
AB011549.2 GI:4589740
AB011549.2 GI:4589740
Escherichta coll ipoprotein; tagA.
Escherichta coll (strain:0157:H7, sub_strain:RIMD 0509952)
plasmid:pol57 DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="ToxR-regulated lipoprotein"
/protein_id="BAA31757.3"
                                                                                                                                                                                                                                                                                    18284 TTCCGGAGCAATTTTACTTTTTTCTCTGCAG 18254
                                                                                                                                                                                                                                                       TTCCGGAGCAATTTTACTTTTTCTCTGCAG 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                υλη(92527. .92721,1. .2502)
/gene="tagA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              db_xref="GI:4666293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA Res. 5 (1), 1-9 (1998)
98290540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 92721)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       outbreak
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Makino, K
                                                                                                                                                                                                                                                       1151
                                                    1031
                                                                                                                                                                                                                                                                                                                                                                                   RESULT 6
AB011549/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
MEDLINE
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
```

TITLE

LOCUS

g ŏ g COMMENT

/product="Type II secretion pathway related protein"
/product="Type II secretion pathway related protein"
/db_xref="G1" 333700"
/db_xref="G1" 333700"
/translation="MLNEDCYOFELSYLDVYGFAUVDMHNGILKVVRSKDARTSAVP
VASDVSPGTGDEVVTRVVPVSNVAARDLAPLLRQLNDMAGAGSVVHYEPSNVLLMTGR
AVWKRLMEIVETPRVDKVGNRSVATVPLTAGATDVARLVTELTRETDRTAIPAMTAK
LVADERTNSVLVSGEPISQRIISIIKQLDRQEDVGONTKVIYLKTARARDLVEVLTG
ISSSIENDSKRSPGTEALRKGVYTIKSHEGYTAALILTGAPDVIRDLENTSGLDIRRPQ
VLVEAIIAEIQDADGLNLGIQWVNKHAGVAQFTSTGLPITTWVQTRQNEILDSDQSNA
LSMRTGIAGTAGFYGGNRALLTALSTSSKNDILATPSTYTDLNGA
SQTTSGDNIFWTVERKTVGIKLRVRQQINEGDSVLLEIEQEVSGVADTAVATTDLGA
TFWTRTYTNAMLVGNGETPVVGGLLDKSIRGSESKVPLLGDIFVLGHLERAKSEQTAK
RNLMLFIRPTILRERDGFRHASAEKYQSFNQEVQSRGKETTALTNEEQLRLSPDQD /db_xxef="G1:3337001"
/translation="MSRVVQNVSESRPLLPESFSRTQRILLLERQEGNRVFCMEDTPA
SALLEVREVAEGPLNVTTVSAEAFERGLOUSSYQRDSDEARQMAEIGNEMDFTVAGE
LPDREDLLDANDDAPITR.IRMATER.IKERASDIHIETYERHLQVRFRIDGYLREIL
RLHRNIASLLISRIKVMARLDIAEKRVPQDGRMVLRIGGRAVDVRVSTLPSNHGERIV QFGVPVTTLVGYYDPEGTLSSYIYPAMYGÄYGFTYSDDSQNLSDNDCOLQVDTKEGGL KFLANHRAWNAKKHINYPTESQPGAITVONKTLDFKSLTPAPEGLYYYVNGQ ALPAKENEGCIVSYNSGKRYCLPVGORSGYSLPBMTVGGDEYYVDSGAKAKVLLSDWDN LSYNRIGEFVGNVNPADMKKVKAWNGQYLDFSKPRSMRVVYK" NPRDRNIMTVEDPVEYELDGISGTOVNPRVDMTFARSLRAILRODPDVVLVGEIRDGE TAQIAVQASLTGHLVLSTLHTNSAAGALSRLQDMGIPPFLLSTSLLAVLAQRLVRTLC PRCRQPCQVSTELAMDMDIPPETTIWQPAGCQHCSFTGYHGRTGIHELLLIDDRIRTA /translation="MALFHYQASDIHGRKRSGILEADSARHARQLLREQALIPVRLDE KQYHHKHSKBERERRERGGSSAELALLTRQLATUVAASLEEALDALLRQSRRFRQ RNLIAAVRTKVLEGHSLAAMGMFETFERLYCAMVAAGETSGRLDVVLSRLADYTEQ RQIMNNRLLQALLIYEVCUTLIVAVGVIALLLTAAVPRVYEQFIHMKQTLELSTYUMGA QEMEPYEHTIDRAEQITASVNELSESKMAELMAEYAVVKVHMWNGNWTRNIYIPTASA DNRGSILTINHEAGYNSYLFINGDEKVVSGGYKKSFVSDGGFWKERDVVDTREARKPE /translation="MLFFLSFRGDRGLFIRDIVLRMLTPNRLLCVILLIAGYQLVSVI HHFWLTQAASVPGLSRVSAPETAVTGDQTEERFVFTLFGRASPLSSEGRAQETWPSLS DDLLSGEDLDVRGILYSSYAEHSVAIFAHNNRQFSLSVGEKVPSYDATISAIFSDHIV INYQCKTVSLPLRYDNTEKKNAYDNNNLTVGDVITQDNFRVESVFDIMSFSAVTVNNT LSGYRLIPGKHSSLFYNAGLHDNDLAVSVNGSELRDTRQAQQIMKQLPELKEIKITVE LRLLDKNSVSLDLAALGMSQQNQRHIDALIRRPHGIILVTGPTGSGKSTTLYAALSLL /product="Type II secretion pathway related protein" /protein_id="BAA31761.1" /db_xref="GI:3337002" /product="Type II secretion pathway related protein" /protein_id="BAA31760.1" IYQGEGELGITRLAGSRYLTLRGDGRQKVLAGETSWEEVVRVTESRLQEEE" /product="Type II secretion pathway related protein" /protein_id="BAA31758.1" DTAFRKVKAAIAAFYAQEM" 5432. .6937 6939. .8162 /gene="etpF" /codon_start=1 /transl_table=11 /codon_start=1 /transl_table=11 RDGQLYDAFIAVGEN" 3675. .5432 /codon_start=1 /trans1_table=11 /codon_start=1 /transl_table=11 3675. .5432 /gene="etpD" 3675. .5432 /gene="etpD" 2589. .3464 /gene="etpC" 2589. .3464 5432. .6937 /gene="etpE" 5432. .6937 /gene="etpE" 6939. .8162 /gene="etpF" 6939. .8162

```
TCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAG
                                                                                                                                                                                                                                                                  CATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                         CATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AFGCCAGAFGACCAGAFCAGGTFTAAATTCCCCGATAATCCGTCGTCGAGAGTGGA
                                               TGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGATAATTA
                                                                                                                                 GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                              551 TAACACATCTCCGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTCACGCCCGCCCCACCACGAGCCAGGGAATGATTTCCCTTCCATCTTCAGCTGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671 CAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              731 AAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTTTTGTCTGACAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         971 AGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTGTCATGGCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCGTTACCGGAAAACCGCTGAACAAATTCGGGCTGAAAAGAGGATCCGCCGTTATCT
                                                                                                                                                                 GITGCATTICCCCTTAGCCTGACTAGCCAGAGACACAATGAICTGTGCCGTTCTGTTAAT
                                                                                                                                                                                                           GGCTTCATTATGCAATGCGGCCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCT
                                    TGGAAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAGTAGGCC
               3;
    d. No. 0;
Mismatches
     Pred.
              ;
    99.78;
   Similarity 99.7
8; Conservative
                                                                                                                       131
                                                                                                                                                                 191
                                                                                                                                                                                                            251
                                                                                                                                                                                                                                                       311
                                                                                                                                                                                                                                                                                                371
                                                                                                                                                                                                                                                                                                                                           431
                                                                                                                                                                                                                                                                                                                                                                                      491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1031
                                    11
                                                                             71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     851
                                                        88939
                                                                                                   88879
                                                                                                                                             88819
                                                                                                                                                                                       88759
                                                                                                                                                                                                                                88699
                                                                                                                                                                                                                                                                           88639
                                                                                                                                                                                                                                                                                                                     88579
                                                                                                                                                                                                                                                                                                                                                               88519
                                                                                                                                                                                                                                                                                                                                                                                                          88459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               88339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             88159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              87979
    Best Local
Matches 116
                                    à
                                                     g
                                                                            ò
                                                                                                 셤
                                                                                                                        à
                                                                                                                                        a
                                                                                                                                                                 à
                                                                                                                                                                                  g
                                                                                                                                                                                                          ð
                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                     /translation="MSGORYKGFTLLEMLIALAVFAALSISAFQYLQGGIRAHELSRD KVQRLAELQRGISQMERDLTQMLPRERGLGLAAPHLLKSDDWGISFTRNSWLNP AGMLPRELQRGISQWGSTRLRQQKLERLSYFHYDHPSGVSPDVRYMLDGYHAFRLRFFYNGD MQARWDSTGILLQQAVGYTLWDDFAELPRLFVSKETAE"
10133. .11110
/gene="etpk"
/1013. .11110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MKLROYOLD"
//translation="MKLROYOLD"
//translation="MKLROYOLD"
LQAKWOCYTAETIANGLIQBESPEKTHLAQNWAQSERQFETRGGDVRGQIVDAQA
LQAKWOCYTAETIANGLIQBESPEKTHLAQNWAQSERQFETRGGDVRGQIVDAQA
CFNLNAINYGVVDLTSIPYAARIFQOLLINLQVELLQARQYTAALRDWIDRDBKPVRG
GAEDBYYMGMEPPYLAANQPWQDVSELRLIRGIDARLYRKLLPYVCVLPTSDLSVNVN
TLLDSQAPLILAALETGREDSLPYTELLQRRPRTGWESVAAFLDAPPLKDIDTSAAMPY
LAVSSNYFLVRLHVRSGEHLFSQQTLMQWREERFRIIQRQYGLTMREVP"
//gene="etpl"
/product="Type II secretion pathway related protein"
/protein_id="BAA31765.1"
                                                                                                           /product="Type II secretion pathway related protein"
/protein_id="BAA31762.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pathway related protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92721;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
/product="Type II secretion
/protein_id="BAA31766.1"
/db_xref="G1:3337007"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1166.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="GI:3337006"
                                                                                                                                /db_xref="GI:3337003"
                                                                                     /codon_start=1
/transl_table=11
/product="Type II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="etpJ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                              gene
                                                                                                                                                                            gene
```

88520

88580

430

370

88760

190

88700

250

310

88820

130

88640

88880

20

ö

Gaps

ö

88460

490

550

88400

88340

610

88220

730

88280

670

88160

850

790

88100

910

88040

970

1090

```
Evolution of enterohemorrhagic Escherichia coli hemolysin plasmids and the locus for enterocyte effacement in shiga toxin-producing E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Doerlin, P. and Gyles, C.
Boerlin, P. and Gyles, C.
Direct Submission
Submitted (17-JAN-1998) Pathobiology, ON Veterinary College, University of Guelph, Guelph, ON NIG 2W1, Canada Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 5612)
Boerlin, P., Chen, S., Colbourne, J.K., Johnson, R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Immun. 66 (6), 2553-2561 (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Infect. In 98261495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gyles, C.
                                                                                                                                                                                                                                                                                                                      1031
                                                                                                                                                                                                                                            911
                                                                                                                                                                                                                                                                                971
         551
                                                                                                                                                               791
                                                                                                                                                                                  88159
                                                                                                                                                                                                                                                             88039
                                                                                                                                                                                                                                                                                                                                         87919
                                                                                                                                                                                                                                                                                                                                                                              87859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 8
AF043470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                              g
                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                     g
                                                                                                                                         名
                                                                                                                                                               ö
                                                                                                                                                                                                   ŏ
                         셤
                                                             ద
                                                                                    ò
                                                                                                                         à
           õ
                                              à
                                                                                                                                                                                                                                                                                                                                                                                                          CATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCAT 88400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     88580
                                                                                                                                                                                                                                                                                                                                                                                        88880
87919 ATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCGTCGAAGTCTGAGGATGGA 87860
                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             490
                                                                                                                           15-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       430
                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                              Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                               GTIGCATITICCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCAAACCGGTACTCAATATCTTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCCACGGGTAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATGACCACCACCACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCAT
                                                                                                                                                                                                                                                                                                                                                                      11 TGGAAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAGTAGGCC
                               AGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGC
                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                6; Length 92721;
                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                            PAT
                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                   composition
                                                                                                                                                                                                                                                                                                                                                    3; Indels
                                                                                                                            linear
                                                                                                                                                                                             Bacteria; Proteobacteria; gamma subdivision;
Escherichia.
                                                                                                                                                                                                                                                                                                                                DB
                                                        DNA
                                                                                                                                                                                                                                  Antisense antibacterial cell division
Patent: WO 0149775-A 7 12-JUL-2001;
Avi Biopharma, Inc. (US)
Location/Qualifiers
                                                                                                                                                                                                                                                                                /organism="Escherichia coli"
/db_xref="taxon:562"
20267 c 23868 g 23716 t
                                                                                                                                                                                                                                                                                                                               Score 1166.2;
Pred. No. 0;
0; Mismatches
                                                                                                                           AX191725
Sequence 7 from Patent W00149775.
AX191725
AX191725.1 GI:15209894
                                                                                                                                                                                                              1 (bases 1 to 92721)
Iversen, P.L.
                                                                                                                                                                                                                                                                                                                               Query Match 98.7%;
Best Local Similarity 99.7%;
Matches 1168; Conservative
                                                                                                                                                                           Escherichia coli.
Escherichia coli
                                                                                                                                                                                                                                                                                                     24870 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      88639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88459
                                       87859
                     1091
                                                           1151
                                                                            87799
                                                                                                        RESULT 7
AX191725/C
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                              ACCESSION
VERSION
                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                 KEYWORDS
SOURCE
                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                οχ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                        å
                                                                                                                                                                                                                                                                                                                                                                                                           ă
                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ογ
                                       셤
                                                          ò
                                                                           g
                     ŏ
```

```
88040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   87860
                                                  88100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF043470 5612 bp DNA linear BCT 25-JUN-1998 Escherichia coli plasmid pol57 ecf4 gene, partial cds; and ecf3, ecf2, and ecf1 genes, complete cds.
AF043470.1 GI:3253288
                                                                                                                                                                                                                                                                                                                                                                                    1030
                                                                                                                                                                                                                                                                                                                                                                                                                                        AIGGCAGAIGACCAGAICAGGIIIAAAIICCCCGGAIAAICCGICGAAGICIGAGGAIGGA 1090
                                                                                                                                                                                                                                                                         910
                                                                                                                                                                                                                    850
610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia coli
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTTGTCTGACAAT
                                                                                                                                                                                                                                                                                                                                                                                                 671 CAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGAT
                                                                                                                                                                                                                     GGCTTCATTATGCAATGCGGGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCT
                                                                                                                                                                                                                                                                                                                                                                                     AGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTGTCATGGCCACT
TAACACATCTCCGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTC
                                                                                                                                                                 731 AAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia coli.
```

De Grandis, S. and

11

ö

```
1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3434
                                                                                                                                                             2474
                                                                                                                                                                                                                                                   2534
                                                                                                                                                                                                                                                                                                                                         2594
                                                                                                                                                                                                                                                                                                                                                                                     250
                                                                                                                                                                                                                                                                                                                                                                                                                               2654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          970
                                                                                                                                                                                                       130
                                                                                                                                                                                                                                                                                             190
                                                                                                                    20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 551 TAACACATCTCCGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3135 AAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCTTCATTATGCAATGCGGCCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGATAAATTA
                                                                                                                                                                                                                              2655 AICAAACCGGTACTCAATATCTTCTGGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGGCACCTGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   731 AAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCTTCATTATGCAATGCGGGCCAGTCGAAACCCGGTGGAATAACCGGTGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTTTGTCTGACAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGTGAAGCGGTGACAGCATATCAGACGCCTCAGTCCTGCTATATTACTGTCATGGCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGAAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAGTAGGCC
                                                                                                                                                                                                                                                                                               CTCCGTTACCGGAAAACCGCTGAACAAATTCGGGCTGAAAAGAGGATCCGCCGTTATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             251 ATCAAACCGGTACTCAATATCTTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGG
                                                                                                                    TGGAAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAGTAGGCC
                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                       Indels
                           Length
                                                                       5,
                           1;
                           B
                                                                       0; Mismatches
                           Score 1163;
                                                   Pred. No.
                           98.5%;
99.6%;
                                                                       Conservative
                                                Similarity
                         Query Match
Best Local Simi
Matches 1166;
                                                                                                                                                           2415
                                                                                                                                                                                                                                                 2475
                                                                                                                                                                                                                                                                                                                                           2535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3315
                                                                                                                    7
                                                                                                                                                                                                       71
                                                                                                                                                                                                                                                                                             131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                      셤
                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                         d
                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δŽ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="unknown"
/product="unknown"
/product="unknown"
/product="unknown"
/product="unknown"
/product="unknown"
/product="unknown"
/db_zref="GI:3253290"
/translation="MHLM7GNRPFESWSALGWAIFYFGFESTLLQVIIFSSGYSGTN
/translation="MHLM7GNRPFESWSALGWAIFYFLYGHEFSGYSGTN
GIRDSLLFSCLWLIPVFLYPORIKIIAAVVGFILWGTSLAALCYYFLYGHEFSGSVLF
VMFTNARRAGGFESFGYFLLLISLYYTANSVFLWTRRPYTPLUFLYSFLLL
YALLLHPYVLKSLIRQFPLNDTLGKLASRMEPAAPWGFVSSYYOYHOOLNALTTFLNE
NSALPLGNLASBCREPRTUALUTGESTQRRRWSLYGYLRFTPELDALRYDDGLT
YRNNYVASRPYTIEALQQALTFANRKNPDIYTLTGPSLANMKQAGYKTFWITNOQTIT
ARNTMLTVFSRQTDRQYYMNQQRTGSAREYDTNUKFPFREVLNDPAPKKLIIVHLLGT
HIKYKYRYPEGGGREPGGITGGHIPTGLNAKELEYYNDYDNANLENDPANSLIKDFRAT
ARDGFLLYFSDHGEEVYDTPPYKTOGRNEDNPTRPMYTVPFLLWTSEKWHAAHPRDFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
/transl_table=11
/product="unknown"
/product="unknown"
/product="unknown"
/product="unknown"
/product="unknown"
/protein_id="AAC24350.1"
/db_xref="G1:3253291"
/translation="whwIllFPESSDIGGQELQALAQWTALQKGGHSVLLACREKSKI
/translation="whwIllFPESSDIGGQELQALAQWTALQKGGHSVLLACREKSKI
APEARKRGHUYTFIPRNASIALLOFITVPSSAMAAHLAMEGVRTPYTVIPGEPW
PALHNEAMRPLPLHIHAMAASADNVPLIVQVGHLRFERGHEFWLRVLYQLKRGSFR
WLVGGAREEFERASLAQQTEHLGANSGTVLMAGALFPALPVYTALASVVWPSEBRERGM
VLARASVSGVPVIASETGGTPDVIQKNVTGTLLPVGDVSAWTGALRDFLSRPERFRM
AASAREDIEVRPIDNRTAGIIVSLASQAKGKCNR"
/gene="ecf1"
/codon_start=1
/codon_start=1
                                                                                                                                                                                                                                                                                    /product="unknown"
/protein_id="AAC24348.1"
/p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="Minarhipvlmyhhysrcpglytlspetfcegmkwladnwwrty
Tsaeleafydggtlerrsywltfddgyldmyrawpylkfyrlhahffltgligkgn
Vrsrdegeyshrdcerliadnrsdeywlrwseyremdsglybehythshrrmdrls
Vsrregorlwkedlilygkgclifeklefcsshicwpbeyynrdyinhagkigfsylyty
Errnncpengslrighistrerensgwlkrrifytytplfssylalhkgpripdn"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QYUDRKYSLAELIHWASDLAGLTYDGYDPTRSLVNPOFRETTRWIGNPYKKNGLTDED
LPRNVSHSIFLSSVPF"
complement(1289. .3695)
/gene="ecf2"
complement(2899. .3695)
1. .5612
//organism="Escherichia coli"
/strain="4304-pri4"
/serotype="0157:H7"
/db_xref="taxon:562"
/plasmid="po157"
/note="produces Shiga toxin"
complement(<1. .705)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
/product="unknown"
/protein_id="AAC24351.1"
/db_xref="G1:3253292"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(751. .2499)
/gene="ecf3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(751. .2499)
/gene="ecf3"
                                                                                                                                                                                                     complement(<1. .705)
/gene="ecf4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1207 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                        /transl_table=11
                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                  /gene="ecf4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1399 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
```

S

ij

```
/translation-"MNLDGVRPYCRIVNKKNESISDIAFAHIIKRVKNSSCTHPKAAL
VFLGBKGFCDSNDVLSIMGQIPRVFKNKMLYDVFKNEKSKNDFLKAAESWLPOSEP
VVINSDDALMAAAYFSVKTKTVNDTDFKERVKYTLGHGSPGSHQLGLGSELID
VQTIISRMCDGILMYKDIRFPSGGSADKVARNNRNAPAESLSCILMSLPFPKEKES
LLEQIKKHLENDESLSDGLKISGYHGYGVHYGGELFPYSHYRSTSIPADPEHTVKRSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein_id="CACO5771.1"

Abaxref="G1:12339040"

/translation="WTKTWNFLLECIATNMIFTPSANALKAEGFLTQQTSPDSLSILPP
PPAEDSVVFLADKAHYEFGRSLRDANRVRLASEDAYYENFGLAFSDAYGMDISRENTP
ILYOLLTQVALQUSHDYANYRAKEYYEKRPFYTYKDATCTPDKDEKMATTGSYPSGHA
SFGWAVALILABINDORRAELIKRYERGESRVICGAHWQSDVEAGRLMGASVVAULH
NTPEFTKSLSEAKKEFEELNTPTNELTP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
/product="OspD2, probably secreted by the Mxi-Spa
secretion machinery, function unknown"
/protein_id="Gc0572.1"
/db_xref="G1:12329041"
/translation="MPLNKTFSSSIFSTKNSLSTDMSVNRDNRTITSSIMRYSNSSEL
IQFKNKTAPYFSEKRNVKVNINGVAKDIYGROIVCRHLASYWEMNFWETNGKVNYQLL
STPDAJARNVCLERFEDFSKSEATIYFVENKKWGTVITNFFYNMKKNGDFVRTLSACT
LNHQMALGIKIKRVQESEKWVVQFFDPNRTVTHKRTVFTCDSHFELSQLSAKDPFDDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YWKIYGLEQPGQVIFEDRHNSPLTNTVKLLPDELINSRVIYHAITKNITEVLETLMEK
YKNGEISOSKLVNLLATRSSGGTPARYIALONGYSDIIQYYGKILNWCNLSQETILTL
AAVGANNYGLCMSFWGHVDTIKAYGEIVFRTPLTSDKRLYLLAARGSHDLGGLFF
ALONGHADSIRMFGSLLNKKLLSSEQIKELTKVKHGLFWALQNGHTKAIMAYGDILKI
LPPHQEYIDELLWIKNNGTSGLFMARYNGHTETIRAFCNILKNYSFTTRRLYEWLGA
TWKDGIPGVFVSVVNRDKETILEYCRIIKENDTIAEOFSKKMKKTFIEIINRFN
                                                   /product="OspB, protein secreted by the Mxi-Spa secretion machinery, function unknown"
/protein_id="Asco5770.1"
/db_xref="G1:12329039"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5527. .5657
/note="IS629.02, 93% 1d over 130 nt with IS629, from 1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7573, .7602
/note="IS630.01, 93% id over 30 nt with IS630, from 1 to 30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="ospr"
/note="oRR12, length= 239 aa, 63.3% id in 245 aa overlap
with STMKFA_1 (Salmonella typhimurium virulence plasmid
Mkfa = 241 aa)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="OR10, length= 569 aa, 39.7% id in 537 aa overlap
with ECSHET2B_1 (S. flexneri SenA 565 aa)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="PhoN2 (Apy), periplasmic phosphatase, apyrase,
ATP diphosphohydrolase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(7603. .8111)
"note="ISShf5.01, fragment of the putative ISShf5,
220 to 1732"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="ospc4 gene, inactivated by frameshits"
7573. 7602
                                                                                                                                                                                                                                                                                                                                     4680. .5420
//gene="phoN2 (apy)"
//note="ORF5, PhoN2 (Apy), length= 246 aa,
SFU04539_1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(11642. .12361)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(11642. .12361)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(9501. .11210)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(9501. .11210)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1220 to 1732"
complement(8133. .8875)
/note="IS600.01, 91% id
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(5782, .7051)
                                                                                                                                                                                                                                                                                         4680. .5420
/gene="phoN2 (apy)"
4680. .5420
                               /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (7603
                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                QKKTFIINKELD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="ospD2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="ospD2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="ospF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     to 0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                            1150
  ATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCGTCGAAGTCTGAGGATGGA 1090
                                                                                                                                             3554
                                                                                                                                                                                                                                                                                                                                                         : BCT 19-JAN-2001
1 to 213494.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TKERVYHPKEGGRKISQLDWKYSNATIVRGGIDWKLIPKVSFOYSGWTTLGNOKASMY
DKDWNNSNTPQVWTDQSWHPNTHLRDANEFELNLKGWLLNNLDYRLGLIAGYQESRYS
FNAMGGSYIYSENGGSRNKKGAHPSGERTIGYRQLFKIPYIGLTANYRHENFEFGAEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to SFU73461_1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KYSGWVLSSDTDKHYQTETIFKDEIKNQNYCSVĀANIGYYVTPSAKFYIEGSRNYISN
KKGDTSLYEQSTNISGTIKNSASIEYIGFLTSAGIKYIF"
complement(1975. .2128)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (29-AUG-2000) P. Glaser, Institut Pasteur, Genomique des Microcranismes Pathogenes, 25 rue du Docteur Roux, 75724 Paris Cedex 15, FRANCE. E-mail: pglaser@pasteur.fr Phone: +33 1 45 68 89 96, Fax: +33 (0)145 68 874 46

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              translation="MKLKFFVLALCVPAIFTTHATTNYPLFIPDNISTDISLGSLSGK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96% id over 385 nt with IS2, from 1 to 393"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            l (bases 1 to 213494)

Bubritaeser, C., Glaser, P., Rusniok, C., Nedjari, H., D'Hauteville, H.,
Kunst, F., Sansonetti, P. and Parsot, C.

The virulence plasmid pWR100 and the repertoire of proteins
secreted by the type III secretion apparatus of Shigella flexneri
20566792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="IS629.01, 95% id over 154 nt with IS629, from 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 (bases 1 to 213494)
Glaser,P., Buchrieser,C., Rusniok,C., Nedjari,H., d'Hauteville,H.
Kunst,F., Sansonetti,P. and Parsot,C.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                        /codon_start=1
/transl_table=11
/product="IcsP (SopA), outermembrane protease of the C
family, involved in cleavage of surface exposed IcsA"
/protein_id="CACO5769.2"
/db_xref-"GI:12329038"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŗg
                                                                                                                                                                                                                                                                                                                           Shigella flexneri virulence plasmid pWR100: from 1 AL391753.1 GI:12329037 virulence plasmid, type III secretion. Shigella flexneri. Bacteria neers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="icsP (sopA)"
/note="ORF1, IcsP (SopA), length= 315 aa,
and AF0016 33_1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1. 213494
/organism="Shiqella flexneri"
/strain="M90r"
/db_xref="taxon:623"
/gene="icsP (sopA)"
991. 1938
                                                                                                                                                                                  /gene="ospB"
3485. .4351
/gene="ospB"
/note="ORF4, length= 288 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2489. .2873
/note="IS2.01, 9
3485. .4351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
1031
                                            3435
                                                                                                                                                                                                                                 3555
                                                                                                                                                                                     1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                        RESULT 9
SFPWR100/c
                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
à
                                       g
                                                                                          ö
                                                                                                                                 셤
                                                                                                                                                                                     õ
                                                                                                                                                                                                                              g
```

from 1 to

over 743 nt with IS600,

from

Jun

Thu

```
186756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186516
                 186996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       186456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              circular BCT 01-FEB-2002
                                                                 329
                                                                                                                                                                                                                                                                     509
                                                                                                                                                                                                                                                                                                                                        269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  929
                                                                                                                                                                                                                                                                                     510 ATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATT
                                                                                                                                                                                                                                                                                                                                                                    690 TCATGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          750 GATGCAGCCCAGGCGTGGATATGCAGGGTAACGGTCGCATGGCTTCATTATGCAATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             810 GGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                870 TGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186455 TTGGGCTGAAAACCATGAACTATTCCGAGTAATCTCCATGCAGTAGGGATGTGAAGACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTCCTGAAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGCTTCCGGAGCAATTTTA
                                                                                                                                                                                                    TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGCCACGCCGGAGACTGAC
                                                                                                                                                                                                                                                                     GCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACTGGCA
                                                                                                                                                                                                                                                                                                                                                                                                       CCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCGGCGCCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTTCTGGTCTTACGGGTGATGTAGGTTTTTTTGTCTGACAATAGTGAAGCGGTG---ACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATATCAGACGCCTCAGTCCTGCTATATTACTGTCATGGCCACTATGGCAGATGACCAGA
TGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATA
                                                                                                                                  330 AGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCAGGTTTAAATTCCCCGATAATCCGTCGAAGTCTGAGGATGGAAGGTGAAGGCTG
                                                               TCTTCTCTGGCGCTGCCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              221618 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTTTTTCTCTGCAG 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AF386526
                                                                 270
                                                                                                                                                                                                   390
                                                                                                                                                                                                                                                                    450
                                                                                                                                                                                                                                                                                                                                                                                                       570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 10
AF386526/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
õ
                        셤
                                                               ð
                                                                                           셤
                                                                                                                                ŏ
                                                                                                                                                        - 6
                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                               /protein_id="caco5774.1"
/db_xref="G1:12329043".
/translation="MKVSFKSLGY1FHDIYNKKHTIDEFNDVVRRAVLSGKINELNAC
HKYA.FLAEKDNEITKKKD&AKIIDTLTENYSIEFQOLMNISERTLNSLYIPPGESGF
VSFVNREGKICHTAYVKSSDNSMTYYHANGSSIDKYITDMCGLICMRHIESTGIIFYM
                                                                             /translation="MPIKKPCLKLNLDSLNVVKSEIPOMLSANERLKNNFNILYNOIR
YPAYYKNANPTYSDIQOPFSVMYQGFQTVNHSGDVFIHACKENPOSKGDPVGDK
FHISIAREQVPLAFDILSGLLESELDFSEDPSDIKWKITDMNRVSQQSRVGIGAQFTLYVKSD
QECSQYSALLLHKIRQFIMCLESNLIASKIAPGETPAROUPPEDWRYVSYRNERENSDR
                                                                                                                                                                                                                                                                                                                                                                                        t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HATREEKSGGGYSGYSFRKLAKTONISIPTRINKEYRRHNLFSLIWHGNADARRYYSE
SLLAAEIPKEEKLEVLAARNNAGESALFIALQEGHSAATQAYGDFIKTFDLSPKETIK
LLDVRDNEGLPGLFLAAGKGNIEAMMAYINICHHSGIKLTEIADRLNNNEQDMFNIIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
/protein_id="CaC0576.1"
/db_xref="GI:L2329045"
/translation="MLQRQRGKVGFAQLPVDFVAIEPDSVQGVGKRANLINRCFIIRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'translation="MSINNYGLHPANNKNMHLIIGSNTANENKGMKNNIINVTNTAIS
                                                                                                                                                                                                                                                                                                                                                    IS2, from 4 to 230"
                                                                                                                                                                                                                                                                                                                                                                                                                                       ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  overlap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ō
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'note="ISSfh5.02b, id over 1689 nt with ISShf5, from 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ដ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84% id over 143 nt with IS630, from 999
                                                                                                                                                                                                                                                                                                                                                                      complement(14367. .14629)
note="IS21.01, 97% id over 263 nt with IS21, from 1825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(15925. 17350)
/note="150,01, 99% id over 1426 nt with IS4, from 1 to 17351. 19039
                                                                                                                                                                                                                                                                                                                                                                                                                                       191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        from 1130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'note="IS3.01, 88% id over 198 nt with IS3, from 1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                     complement(14630. .15558)
/note="IS91.01, 97% id over 929 nt with IS91, from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
/product="OspD1, secreted by the Mxi-Spa secretion machinery, function unknown"
/protein.id="CacO5775.1"
/db_xref="G1:12329044"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20964. .21641

// gene="OspD1"

// foote="OFF21, length = 225 aa, 34.3% id in 140 aa

// foote="OFF728" | (S.flexneri SenA = 565 aa)"

// codon_start=1
               the Mxi-Spa secretion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 213494;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15559, .15924
/note="ISSMf5.02a, id_to_ISSMf5 from 1 to 366"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        183,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                     14014. .14241
/note="IS2.02, 90% id over 228.nt with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nt with
                                                                                                                                                        complement(13393 ...13971)
/note="ORF13, length= 192 aa, unknown"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unknown"
                                                                                                                                                                                                                                                                                                                   LDEKVLSAIAEFMNEKGWRAAFCSAKNLYKCV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 328.6; DB 1;
Pred. No. 1.4e-94;
0; Mismatches 394;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    id over 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="ORF22,length = 104 aa,
            /product="ospF, secreted by machinery, function unknown" /protein_id="CAC05773.1"
                                                                 /db_xref="GI:12329042"
                                                                                                                                                 DGSERQEQMLREEPFYRLMIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21977. .22105
/note="IS3.02, 89%
                                                                                                                                                                                                                                                                                                                                                                                                                     complement (14630.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20459. .20601
/note="IS630.02,
                                                                                                                                                                                                                                                                                                                                                                      complement (14367
                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20964. .21641
/gene="ospD1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27.8%;
llarity 59.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to 1141".
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DKIQELF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 Similarity
578; Conserv
                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
```

/db_xref="taxon:42897" /plasmid="pCP301" /Ansertion_seq="IS629" /Anote="virulence plasmid" /7019571403 /organism="Shigella flexneri 2a" /strain="Shigella flexneri 2a" /strain="Shigella flexneri 2a" /strain="Shigella flexneri 2a" /strain="Shigella flexneri 2a" /Ansertion_seq="Trilo" /Ansertion_seq="Trilo" /Anote="virulence plasmid" /organism="Shigella flexneri 2a" /strain="Shigella flexneri 2a" /db_xref="taxon:42897" /plasmid="pCP301"	/insertion_seq="1802" /note="virulence plasmid" complement(75050 . 76258) /organism="Shigella flexneri 2a" /strain="3higella flexneri 2a" /strain="3higella flexneri 2a" /plasmid="pcP301" /insertion_seq="Tn10" /note="virulence plasmid" 139916139182 /organism="Shigella flexneri 2a"	/strain="30" /db_xref="taxon:42897" /plasmid="pcP301" /insertion_seq="1S801" /note="virulence plasmid" /organism="shigella flexneri 2a" /strain="331" /db_xref="taxon:42897"	/plasmid="pcP301" /insertion_seq="IS629" /note="virulence plasmid" 154128154796 /organism="Shigella flexneri 2a" /strain="301" /db_xref="taxon:42897" /plasmid="pcP301" /insertion_seq="IS62" /orte="rirulence plasmid"	//002. /107685 //organism="Shigella flexneri 2a" //strain="301": //db_xref="taxon:42897" //plasmid="pcP301" //insertion_seq="151328" //note="virulence plasmid" //organism="Shigella flexneri 2a" //strain="301" //plasmid="taxon:42897"	/insertion_seq="ISO-ISIN" /note="virulence plasmid" 186968187636 /organism="Shigella flexneri 2a" /strain="3higella flexneri 2a" /strain="akigella flexneri 2a" /strain="akigella flexneri 2a" /strain="akigella flexneri 2a" /strain="akigella flexneri 2a" /plasmid="pcP301" /insertion_seq="IS629" /note="virulence plasmid" /complement(191493)	/gene="Cp0001" /gene="CP0001" /gene="cP0001" /note="similar to a 301 aa protein from bacteriophage SfX gb: AAD10297.1"
source	source	source	source	Source	source gene	CDS
Shigella flexneri 2a strain 301 virulence plasmid pcP301, complete sequence. AF386526 AF386526.1 GI:18462515 Shigella flexneri 2a. Shigella. I (bases I to 221618) Jin,O., Zhang,J.Y., Liu,H., Yang,J., Yang,F., Zhang,X.B., Wang,J.H., Yang,G.W., Wu,H.T., Dong,J., Sun,L.L., Xue,Y., Zhao,J.S., Ma.D.L., Yan,Z.H., Chen,R.S., Ma.D.L., Yan,Z.H., Wang,Y., Shen,Y., Lu,W.C., Qiang,B.Q., Wen,Y.M. and Hou,Y.D. Complete DNA sequence and analysis of the large virulence plasmid	Uppublished 2 (bases 1 to 221618) 3 (bases 1 to 221618) 3 (bases 1 to 221618) 3 (bases 1 to 221618) 4 (bases 1 to 221618) 4 (bases 1 to 221618) 5 (bases 1 to 221618) 6 (bases 2 to 221618) 7 (bases 2 to 221618) 7 (bases 2 to 221618) 8 (bases 2 to 221618) 9 (bases		/organism="Singelia Liexneri 2a" /strain="301" /db_xref="taxon:42897" /plasmid="pCP301" /insertion_seq="Ins8" /note="virulence plasmid" complement(32084. 32752) /strain="301921" /strain="301921" /strain="301921"			/note="vtrulence plasmid" /note="vtrulence plasmid" 6665667369 /organism="Shigella flexneri 2a" /strain="301"
DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM REFERENCE AUTHORS	JOURNAL REFERENCE AUTHORS TITLE JOURNAL	FEATURES SOURCE SOURCE	source	source	source	source

193276

629

689

749

809

869

269

Jun

Thu

```
193275 CCCATACTGTCAATCTGTAATGCTCCCGCAGTTCAGGCGAACCAGACCCACA 193216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              193395 GCTTCTGCCAGTACCATACCAAACGATTCGTTTTCTGAAGGCAGAACCACCAGACTGGCA 193336
                                                                                                                                                                                                                                                                                                                            TTCCTGAAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGCTTCCGGAGCAATTTTA 1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF348706 221851 bp DNA circular BCT 24-APR-2001 Shigella flexneri large virulence plasmid pWR501, complete plasmid sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Venkatesan, M.W., Goldberg, M.B., Rose, D.J., Grotbeck, E.J.,
Burland, V. and Blattner, F.R.
Complete DNA sequence and analysis of the large virulence plasmid
of Shigella flexneri
Infect. Immun. 69 (5), 3271-3285 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Shigella flexneri
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                                        690 TCATGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCT
                                                                                                                                                                                                                                                                                                                                                                              750 GAIGCAGCCCAGGCGIGGAIAIGCAGGGGIAACGGICGCAIGGCIICAITAIGCAAIGCG
                                                                                                                                                                                                                                                                                                                                                                                                                  193095 GACGCCAGCCAAGAAAGAACATTTGGAGGCAAACTGTTTCGGGAATCAACGTATAATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                   810 GGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          870 TGCGCCATCATGGGTGAGATAGGCACAATGAAATCACACAGGATAATTCAGGGAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               930 GTTCTGGTCTTACGGGTGATGTAGGTTTTTTGTCTGACAATAGTGAAGCGGTG---ACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        570 CCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCGGCGCCCACC
                                                                                                                                                                                                                                   630 ACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATATCAGACGCCTCAGTCCTGCTATATTACTGTCATGGCCACTATGGCAGATGACCAGA
                                                                                         510 ATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     192675 CTGTTTCCCTGCAG 192661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:13310487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTTTTTTCTCTGCAG 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 221851)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Shigella flexneri.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AF348706
AF348706.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Shigella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AF348706/c
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                    셤
                                                                                                                     g
                                                                                                                                                            ŏ
                                                                                                                                                                                            g
                                                                                                                                                                                                                    ο
                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   193635 IGCTICGCIAAIGIGAGIATITITAACGCAGTITIATIAATAICAAACCGCICITCIAIA 193576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        / Frotein 1d="AAL72323.1"
/db_xref="G1:1846251"
/db_xref="G1:1846251"
/fb_xref="G1:1846251"
/franslation="MNLDGVRPYCRIVNKKNESISDIAFAHIIKRVKNSSCTHPKAAL
/franslation="MNLDGVRPYCRIVNKNLYDYPRNEKSKNDFIKMAESWIPPGSEP
IVINNDDDALNAAAYFSVKRAKIKTVNDTDFKEYNRVYILGHGSPGSHQLGLGSELID
VGTISSMAKDGGILNYKDIRFTSCGSADRVARNRNAPAESLSCILNSLPFKEKES
LLEQIKKHLENDESLSDGLKISGYHGYGYHYGQELFPYSHYRSTSIPADPEHTVKRSS
                                                                                                                                                                                                                                                                                                                    /translation="MNHYPSVTSLETPEARCRSGVPPLPACRQRESIYGLIELFIQIV
HRLSVRSERRLVKTLLADFQRVHGKTALLFRIAEAALNNPDGLVKEVVYHLHIVEPDR
SGKRSSSYLAQLRDVSARGDAVKNGRTLPEQDSGLPALVSDPGLPRMISIVL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product-"apyrase"
/protein_id-"aAL/2388.1"
/db_xref-"di:184KT8186.1"
/translation-"bkYtr8FLECIATNMIFIPSANALKAEGFLTQQTSPDSLSILPP
PPAENSVVFQADKAHYEFGRSLRDANRVRLASEDAYYENFGLAFSDAYGMDISRENTP
                                                                                       /translation="MVHATELMKHASSPGCWDFVEPKNTAVRSPESNRIAKSFVKTIK
CDYISIMPRPDGLTAAKNLAEAFEHYNEWHPHSALDYRSPREYLRQRANDNRCLEI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     329
                                                                                                                                                                                                                                                                                                                                                                                                                                                              force "similar to a 288 as protein from Shigella flexnerienb: CAC05770.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           210 TGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATA 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTC 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGAC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aa protein from Shigella flexneri
                                                                                                                                                                                                     Sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   270 TCTTCTCTGGCGCTGCCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGC
                                                                                                                                                                                            /note="similar to a 333 aa protein from Sphingomonas
gb: AAD45420.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1; Length 221618;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27.8%; Score 328.6; DB 1;
larity 59.3%; Pred. No. 1.4e-94;
Conservative 0; Mismatches 394;
                                 /product="hypothetical protein"
/protein_id="AAL72473.1"
/db_xref="GI:18462701"
                                                                                                                                                                                                                                                                  /product-"hypothetical protein"
/protein_id-"AAL72474.1"
/db_xref-"GI:18462702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note-"similar to
jb: AAA21206.1"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                             /gene="CP0002"
/85. 010
                                                                                                                                                                                                                                                                                                                                                                            1176. .2042
/gene="ospB"
/note="CP0003"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2371. .3111
/gene="apy"
/note="CP0004"
                                                                                                                                                        485. .949
/gene="CP0002"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                1176. .2042
/gene="ospB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2371. .3111
/gene="apy"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         578;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local
Matches 57
                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                          gene
                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

1046

986

1106

```
/protein_id="Aaki8315.1"
/db_xref="Gi:13310491"
/db_xref="Gi:13310491"
/translation="MKTKNFLECTATNMIFIPSANALKAEGFLTQQTSPDSLSILPP
/translation="MKTKNFLERCATNMIFIPSANALKAEGFLTQQTSPDSLSILPP
/translation="MKTKNFRERTERCATNFGLAFSDAYGMDISRENTP
ILYQLLTQVLQDSHDYAVRNAKEYYKRVRPFVIYKDATCTPDKDEKWAITGSYPSGHA
SFGWAPALILAEINDPRAEILARGYERGESRYICGAHWQSDYEAGRLMGASVVAVLH
NTPEFTKSLSEAKKEFEELNTPTNELTP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="orf, hypothetical"
/protein_id="AAK18318.1"
/db_xxef="GT:13310494"
/translation="MKNFLRKSIAAQSYSKMFSQGTSFKSLNLSIEAPSGARSSFRSL
FHLDRVSRHYISEIIQKYPPLSSDERHILSIIINSNFRHQSNSNLSNNILNIKSFD
KIQSENIQTHKNYYSEDIKEISNHDFVFWG"
                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=11
/prodeut="orf, hypothetical"
/prodeut="orf, hypothetical"
/prodeut="orf, hypothetical"
/prodeut="orf, hypothetical"
/db_xref="G1:13310492"
/translation="MLPSETHIWQPEFTDKTFSRKLGAVFFTTCNVVLQGNGLPIPYV
DQYNRNDNFRREADFFKILGHLSNRLPDTAPFFNKKINHF"
complement(3470. 4441)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="S0006"
/note="residues 8 to 285 of 323 are 22.56 pct identical to residues 56 to 301 of 612 of product encoded by GenBank accession Number AL008970), Hypothetical protein, len: 613 /codon_start=1 //transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation-"mikfslkiykhirihtlrikkslttilfegveisnhoekleln
kthhrvyfganayiidhdspygymt.tehenaippyfyhehgsfeldnekevydevs
ryygudgytdypipwykdmalgiglehldfergksndogferecynkaidpysldri
ryygudythpwalstdnekriklrisdisledaikasnyeetnnkytdkwahgalays
lgdkradialillskenetyqdyaemekmnniycnifdyetliskoganykleyfi
nnglydvnkkfokansgdtmldnamkskdskmidffikkwsgirgti"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="residues 38 to 128 of 132 are 23.15 pct identical to residues 41 to 123 of 839 of product encoded by GenBank Accession Number 299115 yon0 [Bacillus subtilis]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ដ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="msrpseinrlkalvaklormofeksseklrakterwideaderi
saldeemaetigeoydpyldpsslrossarkpldaslpraprvirpeeeccpacggels
plgcdvseolelissarkviekorpklacrrcdhivqapvpskpiarsyagagllahv
                                                                                                                                                                                                                                                                                                                            /note="residues 27 to 59 of 84 are 36.36 pct identical to residues 427 to 459 of 729 of product encoded by GenBank Accession Number D63999 hypothetical protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="residues 5 to 177 of 183 are 94.21 pct identical residues 42 to 214 of 523 of product encoded by GenBank Accession Number AB024946 orf51 [Escherichia col1]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product-"ISEC8 orf, fragment"
/protein_id="AAK18319.1"
/db_xref="GI:13310495"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="orf, hypothetical"
/protein_id="AAK18317.1"
/db_xref="GI:13310493"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VTGKYADHLPLYRQSDLLFHTAI"
complement(5742. .6164)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(3470. .4441)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(4344. .4742)
/gene="S0007"
complement(4344. .4742)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(5261. .5812)
/gene="S0008"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(5261. .5812)
                                                                                                                                                                                                                                                                                                                                                                                                                          Synechocystis sp.]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
                                                                                                                                                                                                           3272. .3526
/gene="S0005"
3272. .3526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                        3272. .3526
/gene="S0005"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="S0007"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="S0006"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="S0008"
                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="residues 20 to 100 of 100 are 88.23 pct identical to residues 217 to 301 of 301 of product encoded by to residues 217 to 301 of 8000291 is2 hypothetical protein [Escherichia coli]"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          485. 949
//gene="80002"
/note="residues 13 to 93 of 154 are 40.74 pct identical to
residues 5 to 85 of 333 of product encoded by GenBank
Accession Number U65001 putative resolvase [Sphingomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
/product="1S2 orf2, fragment"
/product="1S2 orf2, fragment"
/protein_id="AaK18312.1"
/db_xref="G1:1310488"
/translation="MVHATELMKHASSPGCWDFVEPKNTAVRSPESNRIAKSFVKTIK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="c1:1310489"
/translation="MNHYPSVTSLETPEARCRSGVPPLPACRORESIYGLIELFIQIV
Atranslation="MNHYPSVTSLETPEARCRSGVPPLPACRORESIYGLIELFIQIV
SGRSSSYLAQLRDVSARGDAVKNGRTLPEQDSGLPALVSDPGLPRMISTVL"
1176. 2042
/gene="S0003"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="residues 1 to 246 of 246 are 99.18 pct identical to residues 1 to 246 of 246 of product encoded by GenBank Accession Number T04539 ATP diphosphohydrolase, apyrase [Shigella flexneri]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="residues 130 to 273 of 288 are 28.57 pct identical to residues 12 to 139 of 340 of product encoded by GenBank to residuo Number AL139075 ketol-acid reductoisomerase [Campylobacter jejuni]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VFLGEKGFCDSNDVLSIMGQQIPRVFKNKMLYDYVFKNEKSKNDFLKMAESWLPQSEP
TUNNDDDALMAAAFESVKKAKIKTWNDTDFREXTKYVILGHGSPGSHQLGLGSELID
YQTIISMKDCGIILNYKDIRFRSCGSADKVARNNENNAPAESISCIILNSLPFFKEKES
LLEQIKKHLENDESLSDGLKISGYHGYGVHYGQELFPYSHYRGYSIPADPEHYWRSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           translation="MNLDGVRPYCRIVNKKNESISDIAFAHIIKRVKNSSCTHPKAAL
               E 2 (bases 1 to 221851)
S Venkatesan, M.M., Goldberg, M.B., Rose, D.J., Grotbeck, E.J.,
Burland, V. and Blattner, F.R.
Burland, V. and Blattner, F.R.
Direct Submission
L Submitted (13-FEB-201) Laboratory of Genetics, University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA
Location/Qualifiers
I. 221851
//db_xaref="taxon:623"
//db_xaref="taxon:623"
//db_xaref="taxon:623"
//db_xaref="taxon:623"
//dp_modelment(191. 493)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
/product="putative resolvase, fragment"
/protein_id="AaKi8313.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="orf, hypothetical"
/protein_id="AAK18314.1"
/db_xref="GI:13310490"
                                                                                                                                                                                                                                                                                                                                                                                                                       complement(191. .493)
/gene="S0001"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
/product="apyrase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'trans_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2371. .3111
/gene="S0004"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      485. .949
/gene="S0002"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1176. .2042
/gene="S0003"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="S0004"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QKKTFIINKELD"
      11292750
                                                                                                                                                                                                                                                source
   PUBMED
REFERENCE
                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                              FEATURES
```

Thu

```
GACGCCAGCCAAGAAAGAACATTTGGAGGCAAACTGTTTCGGGAATCAACGTATAATTTC 184384
                                                                                                                                                                                                                                                                                                                                                                                                                          184084
                                                                                                                                                                                                                                                                                                                            1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AF134403 3500 bp DNA linear BCT 02-JUN-1999 Escherichia coli plasmid pAA2 Shf (shf), hexosyltransferase homolog (capU), and VirK (virK) genes, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 3500)
Czeczulin,J.R., Whittam,T.S., Henderson,I.R., Navarro-Garcia,F. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  685
                                                                                                                                                                                              929
                                                                 809
                                                                                                                                                                                                                                                            GTTCTGGTCTTACGGGTGATGTAGGTTTTTTGTCTGACAATAGTGAAGCGGTG---ACAG 986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  diffusely adherent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Univ. of Maryland,
                                                                                                                                                                                                                                                                                                                                                                                                             TGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAAC
                                                                                                                                                                                                                                                                                                                         CATATCAGACGCCTCAGTCTGCTATATTACTGTCATGGCCACTATGGCAGATGACCAGA
                                                                                                                                                                                                                                                                                                                                                         184203 GTGAATAACCGTACTAAACCAACAATATTGCTATCATGCCCACTGTGACAAACGATTGCA
                                                                                                                                                                                                                                                                                                                                                                                         TTCCTGAAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGCTTCCGGAGCAATTTTA
                                                                 GATGCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCATGCCTTCATTATGCAATGCG
                                                                                                                              810 GGCCAGTCGAAACCCGTGGAATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Z (bases 1 to 3500)
Czeczulin, J.R., Whittam, T.R., Henderson, I.R. and Nataro, J.P. Direct Submission
Submitted (11-MAR-1999) Vaccine Development, Univ. of Maryla W. Baltimore St., Baltimore, MD 21201, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Phylogenetic analysis of enteroaggregative and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Infect. Immun. 67 (6), 2692-2699 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="enteroaggregative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. 3500
/organism="Escherichia or
/strain="042"
/db_xref="taxon:562"
/plasmid="pAA2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        184023 CTGTTTCCCTGCAG 184009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTTTTTCTCTGCAG 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AF134403.1 GI:4959583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            558. .1400
/gene="shf"
558. .1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Escherichia col1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Escherichia col
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nataro, J.P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99270924
10338471
                                                                                                                                                                                            870
                                                                                                                                                                                                                                                            930
                                                                                                                                                                                                                                                                                                                                                                                          1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1167
                                                               750
                                                                                                                                                                                                                                                                                                                          987
                                                                                              184443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 12
AF134403/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                            셤
                                                               ò
                                                                                       셤
                                                                                                                            ç
                                                                                                                                                       셤
                                                                                                                                                                                         δ
                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                       ογ
                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  184623 CCCATACTGTCAATCTGATACTGTAAATGCTCCCGCAGTTCAGGCGAACCAGACCCCACA 184564
                                 Ç
                                                                                                                                                       /translation="worvpoysrsgyydryohapsdrkgsderleikvahirtret
Ygtrrioteladngiivgrdrlaklekelrihckgkrkfratinsdhnlpvypnllng
Nftptapngywvadsvygafrngptegagretaayavr"
complement (6200. . 6502)
                                                                                                                                                                                                                                                                           З
                                                                                                                                                                                                                                                                                                                                                                                                      /translation="msrknorystefkaeavktvpenolsisegasrlslpegtlgow
VTAARKGLNTPGSRTVAELESEVMOLRKALNEARLERDILKKATAYFAQESLKNTR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        comes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               390 TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGAC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6793. .7110
//octe="ESO11"
//note="Estimates 1 to 58 of 105 are 34.48 pct identical to residues 383 to 437 of 1003 of product encoded by GenBank Accession Number AL023835 similar to Src homology domain 3; cDNA EST yk491e6.5 comes from this gene; cDNA EST yk200b8.5 comes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 210 TGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATA 269
                              /note="residues 1 to 116 of 140 are 90.51 pct identical residues 1 to 116 of 272 of product encoded by GenBank Accession Number X05952 pot. ORF B [Shigella sonnei]"
                                                                                                                                                                                                                                                         /gene="sooio"
/note="residues 1 to 100 of 100 are 93.99 pct identical
residues 1 to 100 of 100 of product encoded by GenBank
Accession Number X05952 pot. ORF A [Shigella sonnel]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACACTCCCGCTCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCCGGCGCCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACCGCAGCATAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               270 TCTTCTCTGGCGCTGCCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 330 AGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1; Length 221851;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 328.6; DB 1; Length;
Pred. No. 1.4e-94;
0; Mismatches 394; Indels
                                                                                                          /product="IS3 orfB, fragment"
/protein_id="AAK18320.1"
/db_xref="GI:13310496"
                                                                                                                                                                                                                                                                                                                                                                      /protein_id="AAK18321.1"
/db_xref="GI:13310497"
                                                                                                                                                                                                                                          complement(6200. .6502)
complement(5742. .6164)
                                                                                                                                                                                                                                                                                                                                      /transl_table=11
/product="ISEc8 orf"
                                                                                               /transl_table=11
                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="S0011"
6793. .7110
                                                                                                                                                                                                                     /gene="S0010"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27.8%;
llarity 59.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               578;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            184683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local 9
Matches 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Match
                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ογ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

L

```
Justice 1 to 1642)
Nakata,N., Sasakawa,C., Okada,N., Tobe,T., Fukuda,I., Suzuki,T.,
Komatsu,K. and Yoshikawa,M.
Identification and characterization of virk, a virulence-associated
large plasmid gene essential for intercellular spreading of
Shigella flexneri
MOI Microbiol. 6 (16), 2387-2395 (1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TICCIGAAAGGAATAAAAGIGACAICATGCCCICITITICIGGCTICCGGAGCAAITIA 1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        987 CATATCAGACGGCTCAGTCCTGCTATATTACTGTCATGGCCACTATGGCAGATGACCAGA 1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCT 03-FEB-1999
2082 CCCATACTGTCAATCTGATACTGTAAATGCTCCGGAGTTCAGGCAAACCAAACCCCACA 2023
                                                                                                                                                      689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JAN 1918 I Lexneri plasmid pMYSH6000 virulence protein (virK) gene, plasmid pMSH6000 virulence protein (virK) gene, plasmid protein 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               930 GTTCTGGTCTTACGGGTGATGTAGGTTTTTTGTCTGACAATAGTGAAGCGGTG---ACAG 986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             630 ACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAAT
                                                                                                                                                                                                                                                                                                                                                                    750 GATGCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCATGGCTTCATTATGCAATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       810 GGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAAC
                                                    570 CCCAGGIGITCIGICIGCIGACGCAGACGIGCIICGIAIICIICACGCCCGGCGCCCACC
                                                                                                                                                                                                                                                               690 TCAIGICCTITITCGGGACGTAGCAICCCCACCTGAACGAIAAGCGGAACAIIGICIGCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        virulence protein.
Shigella flexneri plasmid:pMYSH6000 DNA.
Shigella flexneri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               to DDBJ by:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Institute of Medical Science
University of Tokyo
4-6-1 Shirokanedal, Minato-ku
Tokyo 108
                                                                                                                                                                                       Submitted (27-APR-1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTTTTTCTCTGCAG 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          D11025.1 GI:216943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Niboru Nakata
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Shigella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1167
                                                                                                                                                                                                                                                                                                                   1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SHEVIRK/C
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                        셤
                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                    ò
                                                    õ
                                                                                                                                                            å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MESISNLSFIGFLKRIVFSSDSLPGKWEHRKFRFWYILRGSINP
VOYSIXYYEARAPTROFILEHYREVQNL
VOYSIXYYELFPCROSILOAIPTI-LAHPTI-LARAIHRFY-HRGGGRAWTRGOTI-EHYREVQNL
PEKYSKFLFPCQKSVSLJOFIGKDGRNFDIOCSPSGFPREGELMLSLFYNKTVYARLTY
SVILTGONGH TAFIGGLOGAPKNTGPDVIRCATRACYGLPPKRIIFFBAFCALMKACNVS
BCLAVSEHSHYFROLKYWYOKRKTFVAVYSDFWDSVPGKTCGDWYKLPTQVIRKPLTD
IPKKRSDYRKQYALLDYIHFTIIRSLDAYPVHSKHQNSN"
668 c 800 g 1039 t 680 g 1039 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /traislation-"MNILETESSPNIGGOELQAVAQMKALKKMGHSVLLVCRENSKIA
FERSKFGIDITFALFRNSLHIPTVWRELGIYHSFQPDAIVCHSGHDSNIVGLVRFFTW
FHPRAIIRQKTYLTRKFFFSINHFCDEVIVPGTSMKTHLEQEGCRTRVTVVPPGFDF
QELYVDSRNSLPPSYLSKHLASRRGCPVIAQYGMLRPEKGGDPLCWLIYGFGLPELREH
LQYQIDSMGMHDDVFIADNVFLPPPYIGLPVWWFCLQKTNLLVWCWQKHRHFLCL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SFIGNGPVRHSPGKEYSHROCEHQIAJGNADNVMLRNSEVNEMLOSGLVEFHVHYYTH
TRWDKKFTSREBOCKHLRQDLLSGREYLKKMTGKCSKHLCWPEGYYNKDYIQIAEELG
FHYLYTTERRMNAPAKGAARIGRISTKERESCAWLKRRLFYYTTPFFSSLLALYKGPR
                                                                                                                                   /protein_id="Rad34404.1"
//protein_id="Rad34404.1"
//protein_id="Rad34404.1"
//translation="WINGGS11"
//translation="WINGGS11"
ENNWKTLSSDELEFFYRGGKLPRKSVMLTFDDGYLDNWFQVYPLLNEFNLKAHVFLIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATT 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  210 TGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2381 TCCTGTTTTGCCAGGCGAGCCATCTGATAAAAACGCCCAGGGTCATTAAAAAATCATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGAC
                                Shigella flexneri Shf"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    270 ICTICTCTGGCGCTGGCTGCCATCATCGGGAAGCGTTCCGGTCGGGATAAAAATCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 246.6; DB 1; Length 3500;
Pred. No. 3e-68;
0; Mismatches 379; Indels 46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note="similar to Shigella flexneri VirK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              product="hexosyltransferase homolog"
protein_id="AAD34405.1"
/db_xref="G1:4959585"
                                similar to
                                                                                                                                                                                                                                                                                                                                                                                                                                                      'note="CapU; hypothetical"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /protein_id="AAD34406.1"
/db_xref="G1:4959586"
          /gene="shf"
/note="hypothetical;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            800 g
                                                    /codon_start=1
/transl_table=11
/product="Shf"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="VirK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2453. .3403
/gene="virk"
2453. .3403
                                                                                                                                                                                                                                                                                                                                                                 /gene="capU"
1403. .2224
/gene="capU"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20.9%;
56.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2453. .3403
/gene="v1rK"
                                                                                                                                                                                                                                                                                                                                                 . 2224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                        LPDD"
                                                                                                                                                                                                                                                                                                                                                 1403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             550;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                     CDS
```

셤

ö g ò 엄 ò g ŏ

a à

ð

```
Shigella flexneri 2a SRL pathogenicity island, complete sequence.
AF326777.2 GI:21450881
                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                        269
                                                                                                                                                                                                                                                                                                                                                                                                                                                  302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  390 TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGAC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   269
                                        08-FEB-1994
15-JUL-1992 JP 1992210772
YOSHIKAWA MASANOSUKE
CIZNI/21, A61K39/00, A61K39/00, A61K39/112, A61K39/112, C12N15/31,
C12P21/02,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Shigella flexneri 2a
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           J. (bases 1 to 66714)
Luck,S.N., Turner,S.A., Rajakumar,K., Sakellaris,H. and Adler,B.
Ferric dicitrate transport system (Fec) of Shigella flexneri 2a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    450 GCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                361 TGCTTCGCTAATGTGAGTATTTTTAACGCAGTTTTATTAATATCAAACCGCTCTTCTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            270 TCTTCTCTGGCGCTGCCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 330 AGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 510 ATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATT
                                                                                                                                                                                                                                                                                                                                                                                                                      210 TGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATA
                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                Length 1642;
                                                                                                                                                                                                                                      peptide 373. .1320
   /product='Shigella virR protein'
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                              (C12N1/21,C12R1:01), (C12P21/02,C12R1:01);
                                                                                                                                                                                                                                                                                                                                                              Score 159.4; DB 6;
Pred. No. 6.7e-40;
0; Mismatches 126;
                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                        504 t
                                                                                                                                                                                                                                                                              1. 1642
/organism="unidentified"
/db_xref="taxon:32644"
1 311 c 376 g 50
                                                                                                                                                                                *source: strain=YSH6000T;
*source: clone=pMYSH6000;
                                                                                                                             strandedness: Double;
               2a
              Shigella flexneri
JP 1994030766-A/1
                                                                                                                                          topology: Linear;
hypothetical: No;
                                                                                                                                                                                                                                                                                                                                                              Query Match 13.5%;
Best Local Similarity 65.1%;
Matches 235; Conservative 0
                                                                                                                                                                     anti-sense: No;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Shigella flexneri 2a
                                                                                                                                                                                                                                       mat_peptide
  ę.
                                                                                                                                                                                                                                                                                                                         Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Shigella.
                                                                                                                                                                                                                                                                                                                        451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       570 C 570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1
C
  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION .
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 15
AF326777
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                 FEATURES
               COMMENT
                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ä
                                                                                                                                                                                                                                 /translation="MFSVSNLSFIGFLKRIVFSSDSLPGKWEHRKFRFWYILRCAINP
VASIRYYELRSLQCIEDILAIOPTLPARIHRPYLHKGRAMSKGOYILEHYRFVONL
PERYSEFLFPOKSVSLVOFTGKDGEDFDIOCSPSGFDREGELMLSLFFNKIVIARLIF
SYLIYONGHTAFIGGLGAPKNTGPDIIRCATRACYGLFPRKIIFERFCALMKACNVS
ECLAVSEHSHVFROLRYWYOKRKTFVAVYSDFWESVAGKTCGDWYKLPTQVVRRPLSN
                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PAT 29-SEP-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                     210 TGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATA 269
                                                                                                                                                                                                                                                                                                                                                                                                                                     270 TCTTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGC 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTC 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241 AGGCGCACATCCATGCGTGCTTATTACCTGCTGGTAACAATGTCCCGGTCTGGTTATTC 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     390 TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGAC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 510 ATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATT 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HIGH SAFETY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          450 GCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                             13.5%; Score 159.4; DB 1; Length 1642; 65.1%; Pred. No. 6.7e-40; ive 0; Mismatches 126; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTENUATED LIVE VACCINE OF DYSENTERY BACILLUS HAVING Patent: JP 1994030766-A 1 08-FEB-1994;
                                                                                                                                                                                                                                                                                                        IASKKRSEYRKRYALLDYIHETAIRSLDAYPVNSEHQDLN"
311 c 376 g 504 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                            /organism="Shigella flexneri"
/db_xref="taxon:623"
/plasmid="Plasmid pMYSH6000"
373. .1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                                              /transl_table=11
/product="virulence protein"
/protein_id="BAA01778.1"
/db_xref="GI:216944"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1642 bp
                           03-3443-3893.
Location/Qualifiers
                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Shigella virk gene.
E06635
E06635.1 GI:2174818
JP 1994030766-A/1.
                                                                                                                       /gene="virK"
373. .1323
                                                                                                                                                    /gene="virK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 1642)
Yoshikawa, M.
                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                     1. .1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unidentified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unidentified unclassified.
                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
nes 235; Conserv
                                                                                                                                                                                                                                                                                                                     451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    570 C 570
Japan
Phone:
Fax:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E06635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1
C
                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
E06635/C
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                        source
                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                              gene
                                                                                                                                       CDS
                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
```

```
/protein_id="AALO8433.1"
/db_xref="G1:15808704"
/translation="MGPAATVDLFNKFVTFTAAQCDQEHIPLIISSIPDIPDRTDALM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="record record re
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SLSLSVLPKLVHSLTAYGGEFVYHVEAIDVVQÄVNTLREGKSDFIISFRDEDLMQSPF
CCLKLFESELYPVCAADAQGHPVFDITQPQVPLLNYTATSYMGRLVNRHLAEVGGITG
RTIFISSMSELLKNWALNGYGIAWLFWSIYDELQTRRLICLDAAKLTVPIQAYIYRM
RTIFISTARTAENLMRILQEHMPDDLIQQISMEEPARRN"
12299. . 12988
/note="Orf8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MSLSRLPFFNKDAYYHLGNYERSDTLRGLITGAWYSALGLELED
HQGLVHFPANGRYILDINDPNFPEQYQRLLVRLDYLTKLDTKASGQRNFGYSGF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
/product="putative transcriptional regulator"
/protein_id="AAL08432.2"
/db_xref="G1:21450882"
/translation="MKNIETKWLYDFLTLEACRHFSQAAKERNLSQPAFSRRIKALEA
                                                                                    /translation-"MHMENNMSNQTGQLYTPSRILRMAELTRLLGISRSTIYVRINPA
SKYHDPTFPRPIRLGSASVGWRASAIDEWLMLHTAPAWSEPENKLKELNDDDKTITP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KKLDKDELEKVLRNIDKFYNAFYSLSVLLDIORTTKILQSLAYYLRVLVREGLMIHGL
YGYAAQYLYDFTSFDTTPYAKKLLEMFYKFQNSAEGTLSRYSVSLDDKSQEYISRLKD
LVFNINDKNGCDDAYLKKIISYFGQLQNEAVHVTSCYETLAVYICLIRKNKINDVLQH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VLDKINILIDKEYVYDGKTLAEVIMENKVLSSRERKETMIGLFTGSKKYTLLQCVEKL
QVDYIVKSPVEIKNYMMLYGDKAENRNRRMIXDALTIICEDDIRNNPPELS"
7104. . 7697
/note="Orf5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLRTFGVIFLVVDMYNTYRPENDSAFYYHIYNFLQKSYCPCLDHADTESDEAAVKRYL
REYLAELGFNKEDFHENGKLYALGKYTGTIRKDNGKSKSLMQQYIMAIKNEYKKDYRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AIGVVLFDRTTTPLQLTEEGKLFHSQTRSLLQQLECNLGELNGQSLLGVPNIKIAAAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MQTNRRAQHMRTFTNMLYDICTVLGLFKEGENPAHKRKSTNFEM
HQKFWDQRYNEISRIIDAEGVFSQEQRRIIYARYEHFYYMMNSYPVHSTLKPEFLRSY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EKIPLIDPVYKEGEIQYDANNFTLMRVIKMYNCMLEKISTKPYIAPPYITGLLDDVEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YDDMERKGLFGELPSGYVRGALSLLRTALEVKVNRKNIKYGSLFYWLDHVKAYQDAFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8449. .8745
/note="Orf6; similar to YfjJ on the cryptic P4 prophage
CP4-57 of Escherichia coli K-12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="remnant of IS200-like element"
complement(10980. 11918)
/note="Orf7; similar to a LysR-like transcriptional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(9112. .10421)
/note="IS629-like element"
10422. .>10905
                                                                                                                                                                                                                                                                                    /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="AAL08431.1"
/db_xref="GI:15808702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /protein_id="AAL08430.1"
/db_xref="GI:15808701"
                'protein_id="AAL08428.1"
                                                                                                                                                                                                                                                                                                                                                                                                /protein_id="AAL08429.1"
/db_xref="G1:15808700"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product-"unknown"
                                                                                                                                                                                                                                                                                                                                                        /product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                3868. .5730
/note="Orf4"
/codon_start=1
                                                                                                                                                                                                                                                                                                                            /transl_table=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              regulator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FVATSVYSDEPYNVTRALLLMVILTATRSGEARGMRWAEIDFHKRVWTIPAERMKARL
OHRVPLSRQAIYILENIRGLHDELVFPSPRKQOILSDMVLTSFLRKKKAVSDIPGRVA
TAHGFRSTFRDWCSEQGYSRDLAERALAHTLKNKVEAAYHRTDLLEGRVPMMQAWADY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LSETASRVKQRIHVVMQWGWAHGFCVANPVDVVDHLLPQQTRGRDEHQPAMPWRQLPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="AAL08427.1"
/db_xref="GI:15808698"
/translation="MMTTKLSLPELDTTKLPDRCQALLDEMHEETGIRREILLSVMLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TATPVVTQQCASCFRKKSFGSQIRDSLRASRERRAKSKERICMTLSNAASRALERFKK
ENMDTVRQNPHMGTFEDIIVRKREQVVRIAALLELEKDPDSTVITLESTNSAIYLIEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YFKHLIYKLESLREISPAEKLDKWLOKRIITTAGYIFOKSYILQYAPYALRKKCVLDE
ALDILAEORKIRIDDNLVVYIGNTITPSELAKKLNIPAFDAGVFICDHONILKYHRNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         translation="MAVLTDTKARHIKPDDKPLPHGGITGLTLHPSSVKGRGKWVFRY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VSPVTQKRRNAGLGTYPEVSIAEAARTARIMREQLAAGDDPLEIKKAESEKVVIPTFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DAARRVHAELSPGWENPKHVROWLSTLENYAFPOLGAKTLDSITAADVAETLRPVWLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  I DOKK NY DRAMEMITOKK I LERRY KKE I ERSPENAAAARAALEKC I ANKPEPPVQQV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LIVNDATPEGIALKLSQSPSLLLLSDEGGTILDKRFERKSALYNTLWSGQPVNVERAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RPGFRLNDVRLTILILIQPVIFNKFFTLTGDQIRGNGFLARLLFCEPGAIKIMTTEPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VMAASVQDTHEVELSGGQRTSLQIFMCLSSASGSGKTSACAKLIAPVHETEEELHQAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Amino acid sequence updated by submitter
4 (bases 1 to 66714)
Luck, S.N., Turner, S.A. and Rajakumar, K.
Direct Submission
Submitted (18-JUN-2002) Microbiology, Monash University, VIC 3800,
                                                                                                                                                                                                                                                                                                            Submitted (06-DEC-2000) Microbiology, Monash University, VIC 3800,
                                                                                                                                                                                                                                                                                                                                                                                                                        Luck.S.N., Turner,S.A. and Rajakumaı, n.
Direct Submission
Submitted (17-MAY-2002) Microbiology, Monash University, VIC 3800,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         619. .1836
/gene="int"
/note="member of the P4 bacterlophage integrase family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="Orf2; similar to Yfji on the cryptic P4 prophage CP4-57 of Escherichia coli K-12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(3507. .3812)
/note="Orf3; similar to AlpA on the cryptic P4 prophage
CP4-57 of Escherichia coli K-12"
YSH6000 is encoded on a novel pathogenicity island carrying multiple antibiotic resistance genes Infect. Immun. 69 (10), 6012-6021 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update by submitter
3, 2002 this sequence version replaced gi:15808696.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'note="corresponds to Escherichia coli min 23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
/product="putative transcriptional regulator"

    . 66714
    /organism="Shigella flexneri 2a"/db_xref="taxon:42897"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 158. .66714
/note="SRL pathogenicity island"
619. .1836
                                                                                                                                                                                                                                    Luck, S.N., Turner, S.A. and Rajakumar, K. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="AAL08426.1"
/db_xref="GI:15808697"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .3535)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "integrase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product-"unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (2006.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VMSQLAKNTKEFA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                (bases 1 to 66714)
                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 66714)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'gene="int"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence ug
On Jun 18,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Australia
                                                                                                                                                                                                                                                                                                                                                            ustralia
                                                                                                                    1437601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                JOURNAL
                                                                                                                                                            PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REMARK
```

21

```
32345 GATTGCATCGGGCTGAAAACTATGAACTATTCCGAGTAATCTCCATACAGTAGGAATGTG 32404
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacillus subtilis dihydropicolinate reductase (jojE) gene, complete cds: poly(A) polymerase (jojI) gene, complete cds; biotin acetyl-CoA-carboxylase ligase (birA) gene, complete cds: jojC, . jojE, jojE, jojE, genes, complete cds: sigc, . L38424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation-"MFVYTLVGTVALSLFLSIFQRYEIHMPLQHDLALAALFAGVFIG
                                                                                                                                                                                                                                                                                                                                                                                                                              BCT 26-MAR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGLGIIFKFGGTTGGVDIIARLVNKYFGIPMGRTMFAFDACVIILSLLTYLSYKEAMY
TLVAVFVAARLIDFIQEGGYAAKGATIISSKNDLIQKKILEEMERGVTILKGQGSYTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MSDKTMKDIQAEVDRYIGOFKEGYFSPLAMMARLTEELGELARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sorokin, A., Rahaim, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EDIDVLYCVVPKNELVMLKSVINSIDPHAFVAVSDVHDVLGEGFTLDENKNPLPR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 (bases 1 to 6540)
Sorokin,A.V., Azevedo,V., Zumstein,E., Galleron,N., Ehrlich,S.D.
and Serror,P.
Bacillus subtilis chromosome between spoilA and kdg loci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus.
1 (bases 1 to 6540)
Bower, S., Perkins, J., Yocum, R.R., Serror, P., Sorokin, A., Rahalm, Howitt, C.L., Prasad, N., Ehrlich, S.D. and Pero, J.
Cloning and characterization of the Bacillus subtilis birA gene encoding a repressor of the blotin operon
J. Bacteriol. 177 (9), 2572-2575 (1995)
                                                                       1100 AAGGCTGTTCCTGAAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGCTTCCGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     biotin [acetyl-CoA carboxylase] ligase; dihydropicolinate reductase; poly(A) polymerase.
Bacillus subtilis (sub_strain 168, strain Marburg) DNA.
Bacillus subtilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29. .42
/standard_name="transcription terminator"
/note="putative"
complement(59. .706)
                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                              DNA

    .6540
    /organism="Bacillus subtilis"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="unknown"
/protein_id="AAA92873.1"
/db_xref="G1:755602"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAA92872.1"
/db_xref="GI:755601"
                                                                                                                                                                                                                                                                                                                                                                                                                       6540 bp
                                                                                                                                                                                                                                       ||||||| || || || || || |||||||| 32486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="taxon:1423"
/map="202 degrees"
                                                                                                                                                                                                1160 AATTTTACTTTTTCTCTGCAG 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (59. .706)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product-"unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /strain="Marburg"
/sub_strain="168"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1011. .1346
/gene="jojD"
1011. .1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'gene="jojc"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1011. .1346
/gene="jojD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="jojc"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           L38424.1 GI:755600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95247697
                                                                                                                                                                                                                                                                                                                                                                                                                          BACJOJC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          terminator
                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS
                                                                                                                                                                                                                                                                                                                                                         RESULT 16
BACJOJC/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                         ò
                                                                           à
                                                                                                                               셤
                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            32044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                32045 TCTTCGGGACGCCAGCCAGGAAGAACACTCGGAGGCAAACTGTTTCGGGAATCAACGTA 32104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  32165 CTCCAGATGTGTCTTCATATTTGTTCCGGGAACAATCACCTCATCGCAAAATGATTAT 32224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              32225 TGAAAAAATTTTGTTTTCGTGTCAAATATGTCTTTTGCCTGATAATTCTGAATGGATG 32284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32285 TITCCAGGTAAAAACCGTACCAAACCAACAATATTACTATCATGTCCACTGTGACAAAC 32344
                                                                                                                                                                                                                                                                                                                                         /translation="MOWOLD TO THE CONTROLL OF THE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSDIDLLVTVTVTRLDETTRRALINDLLETSASSESEELLRAVEVTIVHDDITEWRYP
AKRELGFGEWKRNDILAGIFEPATIOIDLAILLTKAREHSVALVGPAAEELFDPVPEG
DLFEXLMETLTMNSPPDWXGDXRNVVXTLSXIWXSXYTXKTAPKDVXADWAMERLPA
QYQPVILEARQXYLGOEDBLASSADQLEEFVHYVKGEITKVVGK"
complement(17075...17905)
HHGRSPLPVMRDYMHKLEDAGAECIVIPCNTAHYWFKELKDACHIDILSIVETTINEV
RACGKTRIGLLATNATLYMGLYQKGIESLGFTCVSPDADGQKKVMESIYSLKAGNIAH
AQKLMNEQAEILFSRGAEILVLGCTEIPVILAQAVKEQPSRYIDSTASLVRAGIKWYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation-"MREVVIAEVSTQLSEVVGVIERHLEPTLLAVHLYGSAVDGGLKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---ACAGCATATCAGACGCCTCAGTCCTGCTATATTACTGTCATGCCACTATGGCAGAT 1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATT 742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATCAGATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAAATTCAG 922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note-"confers streptomycin and spectinomycin resistance; similar to AadAl from Tn21 on plasmid R100"
                                                                                                                                                                                                                                                       /product="putative anaerobic decarboxylate transporter"
/protein_id="AAL08434.1"
/db_xref="GI:15808705"
                                                                                                                           13054. .14352
/note="Orf9; similar to DcuA in Escherichia coli K-12"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              743 GTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGTAACGGTCGCATGGCTTCATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAATGCGGGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTTCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTTTTGTCTGACAATAGTGAAGCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'note="remnant of IS600-like element; central region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            э;
Э
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1; Length 66714;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="streptomycin adenyltransferase AadAl"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 154.8; DB 1; Length
Pred. No. 4.8e-38;
0; Mismatches 207; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(15323. .16090)
/note="IS1 element"
complement(16171. .16962)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(16171. .16962)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="AAL08435.1"
/db_xref="GI:15808706"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(<14553. .>
                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="aadA1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="aadA1'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="oxa-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13.1%;
ilarity 58.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               deleted"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            al Similarity
292; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
```

ð 셤 ð 셤 ò

ò

ò

gene

gene

```
1318 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 129; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 17
AX100832
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="jojH"
3229. .4302
/gene="jojH"
/gene="jojH"
/note="21.6% of identity to trans-acting transcription
factor of Sacharomyces cerevisiae; 25% identity to sucrose
synthase of Zea mays; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NHRYGEKPKKATEDDKSMEEEIGDVLFVLVCLANSLDISLEEAHDRVMHKFNTRDKD
                                                                                                                                                                                                                                                                              /translation-"MSNETIKLVIAGPRGRMGQEAVKLAERTPHFDLVGAIDHTVDQQ
KLSDVMAVESDAFIYTDIHACFTETQPDVLIDLTPETGKHTRIALEBHGVRPVGTT
GFSEADLKELTSLTERGIGAL ITAPRFALGAILMMK SKMAANYFEDVEIIELHDQK
LDAPSGTALKTAEMISEVRKEKQQGHPDBKEILPGARGAEQNGIRLHRLOINHDSYNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation-"MKIALIAHDKKKQDMVQFTTAYRDILKNHDLYATGTTGLKIHEA
TGLQIERFQSGPLGGDQQIGALIAANALDLVIFLRDPLTAQPHEPDVSALIRLCDVYS
IPLATNMGTAEILVRTLDEGVFEFRDLLRGEEPNV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VEKYPPYDLTLASK TANDERGENELDT THANFALPHAVCAYLAKOMITEBLENDINGT
VEKYPPYDLTLASK TAEVARERENDT THANFALPHAVCAYLAKOMIKRNIGITYTLHG
TDITVLGYDPSLKDLIRPALESSDRYTAVSSALAABTYDLIKPEKK IETIYNFIDERV
YLKKNTAALEKKHGLIPDERVYJHVSNERKVKRYDDVIRVERRIAGKFKKLLLGGDG
PEKSTACELIRKYGLEDOYLALGNDDRYEDLYSISDLKLLISEKESTGLYLLEAMACG
VPCIGTNIGGIPEVIKNNVSGFLVDVGDVTAATARAMSILEDEQLSNRFTKAAIEMLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'translation="MRKLGKQLAEKGHEIHFITSSIPFRLNTYHPNIHFHEVEVNQYA
                                                                                                               /function="lysine biosynthesis"
/funct="28.2% of identical aminoacids with the Escherichia
coli dihydropicolinate reductase; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="38.9% of identical aminoacids with the Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    coli pcnB gene product, encoding poly(A) polymerase;
                                                                                                                                                                                                                     /product="dihydropicolinate reductase"
/protein_id="AAA92874.1"
/db_xref="G1:755603"
                                                                                                                                                                                                                                                                                                                                                               ASFMSGVKLSVEQVMKIDQLVYGLENIID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AAA92875.1"
/db_xref="GI:755604"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein_id="AAA92877.1"
db_xref="G1:755606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NEFSSKKIVSQYEQIYADLAEPE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
/product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'transl_table=11
'product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      product-"unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                      2117. .2530
/gene="jojF"
/note="putative"
                                                                                                                                                                                                       'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1523. .3197
/gene="jojG"
/note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon_start=1
                                                        /gene="dapB"
1358. .2101
/gene="dapB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4307. .5440
/gene="paps"
                                                                                                                                                                                                                                                                                                                                                                                    117. .2530
'gene="jojF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  :523. .3197
'gene="jojG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4307. .5440
/gene="paps"
                                       .2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SFPNGC"
```

gene

gene

gene

```
/translation--WHSTLRKDLIELFSQAGNEFISGOKISDALGCSKTAVKHIEEL
RKEGYEVEAVRRGYRLIKKDGKLSESEIRFGLKTEVMGGHLIYHDVLSSTOKTAHEL
RNINAPEGETLEGNGVMSLILRPDIPLOKTPQLITLAAVAVGGIEERAGIQPDIKWP
NDILINGKRYVGILTERQAEEDRYRSVIIGIGINVNQOPNDFPDELKDIATSGQAG
EKIDRAGVIQHILLCFEKRYRDYMTHGFTPIKLLWESYALGIGTNMRARTLNGTFYGK
AGODL. .6533
/note-"putative"
                                                                         /traislation-"mekveikalpvlrileachoayfycgayrdsymkrigdydia
Tdaapdoverlegrivdygkdesdyvdfrrpsevofissleedlkrrdlinamamta
DGKVLDYFGGKKDIDQKVIRTYGKPEDRFQEDALRMLRAVRFMSOLGFTLSPETEEAI
                                                                                                                                                  AKEKSILISHVSYERKTITEFEKLIGGRASRQALOTLIOTRIYEERINGFYHKREKLISTSAL
EPPFFSILSHVSYERKTITEFEKLIGGRASRQALOTLIOTRIYEELPGFYHKREKLISTS
EPPFFSILSREELWAALLINGIVLKDAPLFLKAWKLPGKVIKEAIHIADTFGGSLDA
MWYTAGKKAALLSAAKISQLRQNEKLDEKKLKDIQYAYQNLPIKSLKDLDITGKDLLA
LRNRPAGKWYSEELQWIEQAVYTGKLSNQKKHIEEWLKTCGQH"
5425. 6342
                                                                                                                                                                                                                                                                                                                                                                          /function="bifunctional blotin operon repressor"
/note="26.7% identity to the Escherichia coli bifunctional
biotin operon repressor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4158 GGCTGTTGCGGCCGTAACATCACCGACATCCACAAAAATCCGCTCACATTGTTTTTAT 4099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     455 AGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PAT 10-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      395 GACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTC 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              335 GCCGGTCCAFGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           attificial sequences.

1 (bases 1 to 10801)
Youum, R.R., Patterson, T.A., Hermann, T. and Pero, J.G.
Methods and microorganisms for production of panto-compounds
Patent: WO 0121772-A 76 29-MAR-2001;
OMNIGENE BIOPRODUCTS, INC. (US)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      515 GTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="blotin [acetyl-CoA carboxylase] ligase"
/protein_id="AAA92879.1"
/db_xref="GI:755608"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 6540;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 64.2; DB 1;
Pred. No. 9.9e-09;
0; Mismatches 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1639 t
/product="polyA polymerase"
/protein_id="AAA92878.1"
/db_xref="GI:755607"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AX100832 10801 bp
Sequence 76 from Patent WO0121772.
AX100832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1547 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                       /gene="bira"
/gene="bira"
5425.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AX100832.1 GI:13619763
                                                                                                                                                                                                                                                                                                                             5425. .6342
/gene="birA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.48;
```

ð

ò

à 셤

```
/codon_start=1
//transl_table=11
/protein_id="hable=11
/protein_id="hable=11
/db_xref="GI:1146225"
/translation="WQTPVSVNEKEDFIRWFLAHYOLKRRECVWILNYLMSHDSLAEK
/translation="WQTPVSVNEKEDFIRWFLAHYOLKRRECVWILNYLMSHDSLAEK
FRSAYSSPEYAAVLESNPHPRNLFENKRDQGLAEQILEHAISTFQREKLLKDIDDAL
DRHDKEAFEQLSROLNQLT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
/protein_id="AaB38434.1"
/protein_id="AaB38434.1"
/tanslation="MRWITDAKDYLQAKDYIDTAVIPLINIRVNNHFKMAAEKGEFT
QLLGBELERQLKGFYTLPPPTYYORNEITYVGCLKDLREELITEFPHYVLLTSDESWR
AEDALGKMIYTSSYPLEHLNDSLKRKILDERTAEILINVLLQLWSTL"
                                                                                                                                                                                                                                                                                              SLILMADLYQMQGLFEVSEQKLFQAKSILDNEPVIDFALGELYFAQGAYAKAVQYFKT
TAEEQSEIGGVNVHQRLAESLSASGEFEDA.PWYERAVDENPDPNTIFGYGFTALQAG
LVKTAIKQLSDLKELDPSYTSLYMPLSKSYEAEGMYERALKRTRED IRYDEYRKELFL
YAAKWALKIGKSEEGKKLLOPGALALDPGFVEALHTLLAVYKREEDYDQIIDLIQEVRS
YGEEDPKYNWYLASYTELEQYEEAKQSFEARAYLHYREDRDFLYEYSFYLEEGLQKE
ALPLIKKVLEMDGANEELEETILRIEDEFSR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /function="menaguinone oxidase"
/standard_name="Rieske protein"
/note="26.2% of identical aminoacids with the
cyanobacterium Nostoc PCC 7906 Rieske iron-sulfur protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="Rieske iron-sulfur protein"
protein_id="AAB38435.1"
/db_xref="Gi:1146227"
/translation="MGGKHDISRRQFLNYTLTGVGGFWAASMLMPWVRPALDPVLKST
                                                                                                                                                                                                                                                    /translation-"MNTLIQEAIKLVEAGETEKGLNTLSKAEKQLHDEDKAIAAQLYY
EWGDVEKAISLISDLHDLYPNETELTNFYAELLIDIDEEEKALAVLETIPETDPSYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GKQDMVQVVSVDELTKEPQRFDFKINQVDAMYESEESRSAWVFKNGDEIVALSPICKH
LGCTVNWNSDPKNPNKFFCPCHYGLYEKDGTNVPGTPPLAPLDHYEQEVKDGFLYLGR
348. 1619.
/gene-"yplA"
348. 1619
/gene-"yplA"
/function-"lypothetical"
                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="ypiB"
1691. 2230
/gene="ypiB"
/function="hypothetical"
                                                                                                                                                                                   /transl_table=11
/protein_id="AAB38432.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /function="hypothetical"
/note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /evidence=experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'evidence-experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        evidence-experimental
                                                                                                                                                                                                                               db_xref-"GI:1146224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="putative"
/citation=[2]
                                                                                                                  /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2285. .2731
/gene="yp1F"
2285. .2731
/gene="yp1F"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2771. .2776
/citation=[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2794. .2799 /citation=[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2874. .3377
/gene="gcrA"
2874. .3377
/gene="gcrA"
                                                                                                                                       citation=[2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /citation=[2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              citation=[2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AKPKGEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -35_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -10_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                   CDS
                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                            6490 GGCTGTTGCGGCCGTAACATCACCGACAACAAAAAACGCTCACATTGTTTTAT 6549
                                                                                                                                                                                                                                                                                                                                                                  BCT 09-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus.
1 (bases 1 to 23775)
1 (bases 1 to 23775)
1 (bases 2 to 23775)
1 (bases 3 to 23775)
1 (bases 4 to 23775)
1 (bases 5 to 23775)
1 (bases 6 to 23775)
1 (bases 6 to 18 kilobase pair region of the Bacillus subtilis chromosome containing the mtr and gerC operons and the aro-trp-aro
                                                                                                                                                                                                                                                                                                                                      395 GACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTC 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Proc. Int. Symp. Genet. Ind. Microorg. 6, 657-665 (1990)
2 (bases 1 to 23775)
Sorokin,A., Azevedo,V., Zumstein,E., Galleron,N., Ehrlich,S.D. and
                                                                                                                                                                                                                                                335 GCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAAT 394
                                                                                                                                                                                                                                                                                                                                                                                                                            455 AGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACCACTGGCAATCCG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BACYPIA

BACILLS aubtilis (clone YAC15-6B) PPIABE genes, gcrABC genes, ypjABCDEKGHI genes, birth gene, panBCD genes, ding gene, ypmB gene, aspB gene, dnab gene, nth gene and ypoc gene, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 515 GTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCC 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gub_strain="100"
/db_xref="taxon:1423"
/map="202 degrees"
/clone="xar15-6B"
/clone=lib="chromosome YAC library of Pascale Serror"
/clone=lib="chromosome YAC library of Pascale Serror"
                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence analysis of the Bacillus subtilis chromosome region between the serA and kdg loci cloned in a yeast artificial
                                                                                                                                                                                                      ö
                                                                                                                                                       Length 10801;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /standard_name="transcription terminator"
/note="putative"
/citation=[2]
                                                                                                                                                         Score 64.2; DB 6; Length 1
Pred. No. 1.1e-08;
0; Mismatches 108; Indels
                                                                   /note="Recombinant pAN240 plasmid"
2485 c 2151 g 3368 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Microbiology 142 (Pt B), 2005-2016 (1996)
96349105
                         /organism="synthetic construct"
/db_xref="taxon:32630"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Bacillus subtillis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /strain="Marburg"
/sub_strain="168"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .33
/gene="aroE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'gene="aroE"
                                                                                                                                                       Query Match 5.4%;
Best Local Similarity 54.4%;
Matches 129; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            L47709
L47709.1 GI:1146223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacillus subtilis.
Bacillus subtilis
    .10801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       supraoperon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               chromosome
                                                                                             ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Serror, P.
                                                                                          2797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8760912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BACYPIA/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
```

ö

gene

CDS

gene CDS

```
Bacillus subtilis

Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus.

I (bases I to 213680)

Kunst, F., Ogasawara, M., Moszer, I., Albertini, A.M., Alloni, G., Azevedo, V., Bertero, M.G., Bessieres, P., Bolotin, A., Borchert, S., Borniss, R., Bruschi, C. V., Caldwell, B., Caphanno, V., Bertero, M.G., Bessieres, P., Bolotin, A., Borchert, S. Bronis, R. Buschi, C. V., Caldwell, B., Caphanno, V., Carter, N.M., Choi, S.K., Codeni, J. J., Connetton, I. F., Cummings, N.J. Daniel, R.A., Denizot, F., Devine, K.M., Dusterhoft, A., Ehrlich, S.D., Emmerson, P.T., Entian, K.D., Errington, J., Fabret, C., Ferrari, E., Foulger, D., Fritz, C., Guy, B.J., Haga, K., Haiech, J., Harwood, C. R., Henaut, A., Hilbert, H., Holsappel, S., Hosono, S., Hullo, M.F., Itaya, M., Jones, L., Joris, B., Karamata, D., Rasahara, Y., Kaerr-Blanchard, M., Klein, C., Kobayashi, Y., Koetter, P., Kaningstein, G., Krogh, S., Kumano, M., Kunita, K., Levine, A., Liu, H., Masuda, S., Mauel, C., Medique, C., Medina, N., Mellado, R.P., Masuda, S., Mauel, C., Medique, C., Medina, N., Moone, D., O'Reilly, M. Ogawa, K., Ogawa, R., Oudega, B., Perscott, A.M., Parro, V., Pohl, T.M., Purnelle, B., Rapoport, G., Rey, M., Reynolds, S., Rieger, M., Sato, T., Scanlan, E., Schletch, S., Schroeter, R., Scoldo, B., Scorokin, A., Tacankoshi, A., Tanakoshi, H., Takahashi, H., Takamaru, K., Tackat, T., Tanakoshi, H., Takahashi, H., Takahashi, H., Takahashi, H., Takahashi, H., Takahashi, H., Waitzenegger, T., Wilnters, P., Wilpat, A., Yamamoto, H., Yamanoto, K., Yamamoto, K., Yamamot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10743 GGCTGTTGCGGCCGTAACATCACCGACATCCACAAAAATCCGCTCACATTGTTTTTAT 10684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BCT 26-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BSGB0012 213680 bp DNA linear BCT 26-NOV-199' Bacillus subtilis complete genome (section 12 of 21): from 2195541 to 2409220.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   335 GCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAAT 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             455 AGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    515 GTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCC 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    395 GACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 23775;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 5.4%; Score 64.2; DB 1; Length 2: Best Local Similarity 54.4%; Pred. No. 1.3e-08; Matches 129; Conservative 0; Mismatches 108; Indels
                                 /standard_name="transcription terminator"
                                                                                                                                                                                                                                                                           /gene="ypjc"
/function="hypothetical"
/note="putative"
/citation=[2]
                                                                                                                  /citation=[2]
complement(6464..7111)
/gene="ypjC"
                                                                                                                                                                                                                                         complement(6464. .7111)
                                                                            /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            299115 AC009126
299115.1 GI:2634478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacillus subtilis.
terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 19
BSUB0012
                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
/protein_id="AAB38438.1"
/protein_id="AAB38438.1"
/db_xref="G1:1146230"
/translation="MLILVAINFLGTVYGYYWYLPQLLETPARFLIFVPDSPTATFF
FLFVLLAFLAKRNAPLEALALVTLVKYGLWAVAMNELVLAYTGDLPWEGYMIJASHF
AMAVQGVLYSPYFRPSFWHLAIAAVWTLHNDVIDYLFDMMPQYSMLSDYWTEIGYGTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="cytochrome b"
/product="cytochrome b"
/protein_id="AAB38436.1"
/db_xref="G1:1146228"
//db_xref="G1:1146228"
/db_xref="G1:1146228"
/db_xref="G1:U146228"
/db_xref="G1:U146228"
/db_xref="G1:U146228"
/db_xref="G1:U14628"
/db_xref="G1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="cytochrome b"
/protein_id="AAB38437.1"
/brotein_id="I146239"
/branslation="WHRGKGMFYGDSRIPAEKKPNIPKDYSEYPGKTEAFWPNFLLK
FWANGAVFLIGFLVLTIVHQPPLERWADPTDTGYIPLPDWYFLFLYQLLKYEYAAGSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TVVGAMIMPGLAFGALLLAPFLDRGTERRPWKRPVAVGMMLLAISAÄVFLTWQSVATH
DWAKAEEGGKITKEADIDTNAEGYKVFKEQGCISCHGDNLQGGAAGPSLVDSGLKPDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AKY EEALQVLEY PEKTIKSAEKKQODPMITGAOIRQITLGYNDMVRSIKQADTSDTOK
LRAAAQFRMIMDAVDNRSDPIMGSLEKPIMEAFTELKRDVQKNGSTSFHEKWNEFISL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        translation="mkrktTicllialifyngnakaaergsleelndlsdTvFomTro"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YDLIYPSLIIDVSEDQLETVGKHIDVIEQEEFQQMTESTKLERLSLLQHDLKNVFDRV
EEDDADPSLLWVIITTGSIIITALTYVGYRKYKAEKNKLKKRDYPK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="29.1% of identical aminoacids with the Spinacia
leracea chloroplast cytochrome b"
                                                                                                                                                                 /function="cytochrome reductase"
/fandard_name="cytochrome b6"
/note="42.3% of identical aminoacids with Chlorella protothecoides chloroplast cytochrome b6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1898. .4922
/standard_name="transcription terminator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KKIAVEGKGKMPAGVFKGNDKQLEELAKFISETTAK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WLSIFSIALAYFLVVSKKQTKLELM"
5628. .6422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5628. .6422
/gene="ypjB"
/function="hypothetical"
/note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'protein_id="AAB38439.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   function="hypothetical"
                                                                                                                                                                                                                                                                                                                                                                                                          /evidence=experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              evidence-experimental transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              db_xref="GI:1146231"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="putative"
/citation=[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'note="putative"
/citation=[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                        'codon_start-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'codon_start-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="ypjB"
5628.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5002. .5559
/gene="ypjA"
5002. .5559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4088. .4855
/gene="qcrC"
4088. .4855
/gene="qcrC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      citation=[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  002. .5559
gene="ypjA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     citation=[2]
                                                                                                                                                                                                                                                                                                                                  citation=[2
                                          qcrB.
                                                                                                                      'gene="qcrB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GISGPL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         terminator
```

gene

gene

CDS

```
/translation-*MKRFILVLSFLSIIVAYPIQTNASPMPCSVILEPVDKNLKNAKG
VALIYKVQLNPPSAARTNISILAVHLPAPSSFGNYDSYEGFATKPGEISWRFKLYPTP
EEESPSWAGRIDTISAEMKNVKVQVRLSNSSTQKLGPSILTKNIESCY*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation-*MERMNLERITIPDLNKIRPGTRVQVTWYRGTEMEYTHNGEVII
NNGEKFYNYVDKEGYVGHCHVNALDLKNYPDSLIVEIKSK"
complement(2851. .3054)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="Cabi3985.1"
/db_xref="C1:2634487"
/db_xref="E01:2634487"
/db_xref="SPTREMBL:0344497"
/translation="MESYLTYIEQNGQLLVDSREVAEWVGKRHTDLLRSIDGYVAILL
NAKLASVEFFLESTYRDATGRSLKHFHLTRGCDMVANKMTGAKGVLFTAQYVSKFEE
GLMKLAGVARALGIRGMGQNNLFFRENENVKLIDGTNKNAPYGKYVERYDRFLTD
SVGIKTITLVTPRGADFIVDLLKKHGHKREIAS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="SptrembL:034584"
/translation="MKFAPMDKVRFKTASHLNKLRTLKRRVPELDDPLLGEGWEFEED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'translation="MENNVLYGVYSTRSRKFCFGIEEPSKTKARKELFNRIGTDAYKW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="similar to phage-related DNA-binding protein anti-repressor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="CAB13984.1"
/db_xref="G1:2634486"
/db_xref="SPTREMBL:034429"
                                                                                                                                                    /transl_table=11
/protein_id="CAB13981.1"
/db_xref="G1:2634483"
/db_xref="SPTREMBL:034999"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="SPTREMBL:035030"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
/protein_1d="CAB13983.1"
/db_xref="G1:2634485"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="CAB13982.1"
/db_xref="G1:2634484"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLRQFDWEENYEFVARPKHFNWD"
                         complement(2014. .2466)
                                                                                                                                                                                                                                                                                                                                                         complement(2549. .2806)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(2851. .3054)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(3281. .4036)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(3281. .4036)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(4077. .4484)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(4077. .4484)
                                                                    complement(2014. .2466)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(3063. .3227)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(3063. .3227)
                                                                                                                                                                                                                                                                                                             complement(2549. .2806)
    HLSNGNDLFVDNHEVIVEYE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  function="unknown"
                                                                                           /gene="yogH"
/function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                /gene="yoqG"
/function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     function-"unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /function="unknown"/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    function-"unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'gene="yogE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'gene="yoqc"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'gene-"yoqF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'gene="yogF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="yoqD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="yodD
                                                /gene="yogH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RFEIRKIKRK"
                           gene
                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                           Z (bases 1 to 213680)
Runst, F., Ogasawara, N., Yoshikawa, H. and Danchin, A.
Buret Submission
Submitted (18-NOV-1997) I. Moszer, A. Danchin, Institut Pasteur,
Regulation de l'Expression Genetique, 28 rue du Docteur Roux, 75724
Paris Cedex 15, FRANCE. E-mail: moszer@pasteur.fr,
68.89 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/protein_id="CaB13979.1"
/db_xref="G1:8634481"
/db_xref="G1:8634481"
/db_xref="SPTREMBL.034359"
/translation="WRMPFWLKLKOKLLAVIEELITKENKYRFITGGALGTDQAACWC
VHILKKKHPHIKNIIATPEREQDKVWSADQKWWYKRALNVADEIINVEELDKYKVSGE
KPGEFSPAKMQKRNEYMIDHSEALVAVYDGSKSGTRNCLNYAKKTYLGHQLWRLHPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/protein_id="CAB13980.1"
/db_xref="G1:2634482"
/db_xref="SPTREMBL:034339"
/translation="MIKSIILPEENTKITYGRPINDESNTKVIAIYDYREEPEEAFWV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CKACVLKKAKESMLKNYDKQLGRMRERNLLPGMKEAKKKYNSSLKKKKTOQIWGEKNK
LKLKNYRLQRDAHKKHNITDVQWQKCKDYFNNKCSYCGLKIEDHKILFKGTYIOSDFH
KEHVDHKGANDISNCIPACKSCNSSKHDFAFEEWINSSNKNFSSERLLKIKEWLNRFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="SPTREMBL:034326"
/translation="MKLIEERTYEERLYIYSDDIEARKHFVSELKPKGWMVDNCWVGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'translation="MDSKKHKIINGYYHKNCISCKSWLPATEENFYSVKKNKDGLHSY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="similar to hypothetical proteins from B. subtilis"
                                         The complete genome sequence of the gram-positive bacterium
Foshida, K., Yoshikawa, H.F., Zumstein, E., Yoshikawa, H. and
                                                                                                                                                                                                                                                                                                                                                                       /organism="Bacillus subtilis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'db_xref-"SPTREMBL:034581"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="CAB1397.1"
/db_xref="G1:2634479"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'trans]_table=11
|protein_id="CAB13978.1"
|db_xref="G1:2634480"
                                                         Bacillus subtilis
Nature 390 (6657), 249-256 (1997)
98044033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DLNQIKQFYRFKRELTDDYVFNR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(1771. .1965)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(1045. .1560)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(1045. .1560)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(1771. .1965)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(822. .1025)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(822. .1025)
                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:1423"
                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(90. .782)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(90. .782)
                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="yoqL"
/function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                             /strain="168"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EERODSEWRIKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'gene="yoqj"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "gene="yoq!"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="yogk"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'gene="yogk"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene="yoqJ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene="yoqI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="yodL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NFELDITYFVG
                                                                                                                                                                                                                                                                                                                                                       1. .213680
                      Danchin,
                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                         MEDLINE
PUBMED
PUBMED
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                FEATURES
                                         TITLE
```

```
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  160984 AACCTCAGGGATACCGCCAATGTTTGTTCCAATACAAGGCACTCCGCAAGCCATGGTTC 161043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    160924 GGCTGTTGCGGCCGTAACATCACCGACATCCACCAAAAATCCGCTCACATTGTTTTTAT 160983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alvaced, J., Reinach, F.C., Arruda, P., Abreu, F.A., Acencio, M., Alvacedga, R., Alves, L.M., Araya, J.E., Baia, G.S., Baptiste, C.S., Blavenoga, R., Alves, L.M., Drawa, J.E., Baia, G.S., Baptiste, C.S., Barcos, M.H., Bonaccorsi, E.D., Bordin, S., Bove, J.M., Briones, M.R., Bueno, M.R., Camargo, A.A., Camargo, L.E., Carraro, D.M., Carrer, H., Colauto, N.B., Colombo, C., Costa, F.F., Costa, M.C., Costa Neto, C.M., Carrer, H., Facincani, A.D., Ferreira, V.C., Ferro, J.A., Franco, J.S., Franco, J.S., Franco, M.C., Frohme, M., Furlan, L.R., Gandman, G.H., Goldman, M.H., Gomes, S.L., Gruber, A., Hoheisel, J.D., Junqueira, M.L., Kemper, E.L., Kitajima, J.P., and Marino, C.L., Kitajima, J.P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AEUU3927
Xylella fastidiosa 9a5c, section 73 of 229 of the complete genome.
/protein_id="Cabl3986.1"
/db_xref="G1:2634488"
/db_xref="SPTREMBL:034834"
/translation="WEVINKTNOREKFIRNGIPYDELDTOMIHLIDIINFKIGIKTRH
CCFGHKPYEEIQVMFEDEVNIKEDQIIELAELAGREWKGLQLSFSKWARFSPLMFWS
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 (bases 1 to 13334)
Simpson,A.J.G., Reinach,F.C., Arruda,P., Abreu,F.A., Acencio,M.,
Alvarenga,R., Alves,L.M.C., Araya,J.E., Bala,G.S., Batista,C.S.,
Barros,M.H., Bonaccorsi,E.D., Bordin,S., Bove,J.M., Briones,M.R.S.
Bueno,M.R.P., Camargo,L.E.A., Carraro,D.M.,
Carrer,H., Colauto,N.B., Colombo,C., Costa,F.F., Costa,M.C.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGCCACGCCGGAGACTGACGCTTC 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          455 AGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              161104 ATAAAGATCTTCAACACGGTCTTGATTTCCAAGCATTAAGACTTGGTCTTCCAAGCC 161160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The genome sequence of the plant pathogen xylella fastidiosa. The Xylella fastidiosa Consortium of the Organization for Nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            515 GTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATTCCGCTCATTCC 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Proteobacteria; gamma subdivision; Xanthomonas group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                          Length 213680;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                              LVLSKRFRNPEDPNKYRYLRSVEEFFESYAAKK"
                                                                                                                                                                                                                                                                                                                                                                                                    Score 64.2; DB 1;
Pred. No. 2.1e-08;
0; Mismatches 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequencing and Analysis
Nature 406 (6792), 151-157 (2000)
                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
/protein_id="CAB13987.1"
/db_xref="GI:2634489"
                                                                                                                                                         complement(4491. .4829)
                                                                                                                                                                              /gene="yoqB"
complement(4491. .4829)
                                                                                                                                                                                                                                /gene="yoqB"
/function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Xylella fastidiosa 9a5c.
Xylella fastidiosa 9a5c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AE003927.1 GI:9105783
                                                                                                                                                                                                                                                                                                                                                                                                          54.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 13334)
                                                                                                                                                                                                                                                                                                                                                                                                                                 Best_Local Similarity 54.4
Matches 129; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10910347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20365717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 xylella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              335
                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 20
AE003927/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
MEDLINE
                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
SOURCE
                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCUS
```

셤

ó

g ò ద ò

```
Costa-Neto,C.M., Coutinho,L.L., Cristofani,M., Dias-Neto,E.,
Docena,C., El-Dorry,H., Facincani,A.P., Ferreira,A.J.S.,
Forreira,V.C.A., Ferro,J.A., Fraga,J.S., Ferreira,A.J.S.,
Forme,M., Furlan,L.R., Garnier,M., Goldman,G.H., Goldman,M.H.S.,
Gomes,S.L., Gruber,A.H. Bo,P.L., Hohelsel,J.D., Junqueira,M.L.,
Kemper,B.L., Kitalima,J.P., Krieger,J.E., Kuramae,E.E., Lalgret,F.,
Lambais,M.R., Lelte,L.C.C., Lemos,B.G.H., Lemos,M.V.F., Lopes,S.A.,
Lopes,C.R., Marchado,J.A., Marchado,A.N., Madeira,A.M.B.N.,
Madeira,H.M.F., Marino,C.L., Marques,M.V., Martins,E.A.L.,
Mayaki,C.Y., Monteiro,W.L.E.S., Nhani Jr.,A., Nobrega,F.G.,
Myaki,C.Y., Monteiro,Vitorello,C.B., Moon,D.H., Nagai,M.A.,
Nascimento,A.L.T.O., Netto,L.E.S., Nhani Jr.,A., Nobrega,F.G.,
Nunes,L.R., Oliveira,M.A., de Oliveira,M.C., de Oliveira,M.C.,
Palmieri,D.A., Paris,A., Perxoto,B.R., Pereira,G.A.G., Pereira
Jr.,H.A., Pesquero,J.B., Quaggio,R.B., Roberto,P.G., Rodrigues,V.,
Gawasaki,H.E., da Silva,A.C.R., da Silva,A.M., Silva,
Jr.,W.A., da Silva,A.P., Terenzi,M.F., Truffilb, Tasad,S.M.,
Tsuhako,M.H., Vallada,H., Van Sluys,M.A., Truffilb, Tasad,S.M.,
Tsuhako,M.H., Vallada,H., Van Sluys,M.A., Truffilb, Tasad,S.M.,
Tsuhako,M.H., Zago,M.A., Zatz,M., Meldanis,J. and Setubal,J.C.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TLAKGGIQLDIKUVENDYVQPNOQVAQKQIDVNYFQTEPYLQAYNRSRNTHLITVVGVH
IEPFGAYSRRYTALASLPKGAEJAIPNDPSNNSRALILLHQAGLIKLKDPKNNLATQR
DIEDPRIFKFRELDAAMLPRVLDQIDLVLINTNYALSAGLKPNQDALAIENKDSPYV
NYLVSREDNKDDPRVQKLAKKLITSPEVKDFIDKKYGSAILPAF"
complement(1626. .2333)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="similar to GI|6459112 (percent identity: 48 %/query alignment coverage: 91.9 %/subject alignment coverage: 99.1 %); identified by sequence similarity; putative; ORF located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="similar to GII4156104 (percent identity: 43 %/query alignment coverage: 102.7 %/subject alignment coverage: 98.9 %); identified by sequence similarity; putative; ORF located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="outer membrane protein"
protein_id="aAR8368.1"
/db_xref="G1:9105785"
/translation="MKHFILCVATLLFVGCGPSDSNHDRLSIAATAVPHAEILEFVKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="mySGWRRHPRATKEWENAAQNTVKFGGDVAPTLSVTYYINDNVG
FELWGITKKLSYTAKTDASGKIGNVTQKTPLALSAQYHFGQAQNVFRPFFGVGYSQAK
SKFTALGSTDRVNLGNFRGAIGTIGLDMNVDSNWFARLDARYTRFSNSNSKAALSSSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="XF0872"
//gene="similar to SP|P21364 (percent identity: 30 %/query alignment coverage: 8:3 %/subject alignment coverage: 74:5 %); identified by sequence similarity; putative; ORF located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
SP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (02-JUN-2000) organization for Nucleotide Sequencing a Analysis, Bioinformatics Lab – IC/Unicamp, C.P. 6176, Campinas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Xylella fastidiosa 9a5c"
/db_xref="taxon:160492"
/clone="9a5c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="outer membrane protein"
/protein_id="AAF83682.1"
/db_xref="G1:9105784"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(1626. .2333)
/gene="XF0874"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(747. .1532)
/gene="XF0873"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(747. .1532)
/gene="XF0873"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLDQNRRLDPWSVGFGIGARF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="XF0872"
96. .641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="XF0874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Analysis, Bioinfor
13083-970, Brazil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
```

```
5398. .6510
/gene="XF0879"
/note="similar to GI|3337079 (percent identity: 26 %/query
alignment coverage: 94.9 %/subject alignment coverage:
95.4 %); identified by sequence similarity; putative; ORF
located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MKVLFVGTSRGGGGAESHFVGLVRAMAETNHQSTVLVHPDGLIA
RQLQQTAIRLETATFRNYMDLRGYTAIRRALRLVHPDVLVGDFGKEYWPLLLMGRLYR
RQLQPTAIRLEPATFRNYMDLRGYTAIRRALRALRAHRAHRAGMPERKYQYLINHVDT
DALRPDPRVTRAMLHEGWIDDVLVVGCFGRIHGGRGYFVLAEAMGARGERERLCCL
WMGTGLHVQRLAATVAGSRFASRQRVLGWVTDPARYFQALAMLAMPSLLPETFGRVSA
AHGFSATCYVVSGSLARFNTWDAERLNVCKPLMSPAQVRQWHDAGMEVCAHTRSHPHL
SGCTAAQLHEEIAGCRDDLEQCIGAPVTQFCYPYGDVTPPVIDAVCDAGYAAATTTRR
GRVFPGQHLWTLPRVPVSYRHILPQPALRTLTGYEDRRI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NA linear BCT 27-APR-2001 section 156 of 280 of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6215 CGTCCAAACGTCTCCGGCAACAAAGAAGGCATCGCCAGCATCGCCAACGCCTGGAAATAA 6156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mycobacterium tuberculosis CDC1551.
Mycobacterium tuberculosis CDC1551
Bacteria; Firmicutes; Actinobacteriae;
Bacteria; Firmicutes; Actinobacteriaes
Actinomycetales; Ocynebacterineae; Mycobacteriaeea;
Actinomycetales; Corynebacterium tuberculosis complex.
1 (bases I to 1433)
Fleischmann, R.D., Alland, D., Eisen, J.A., Carpenter, L., White, O., Peterson, J., DeBoy, R., Dodson, R., Gwinn, M., Haft, D., Hickey, E., Kolonay, J.F., Nelson, W.C., Umayam, L.A., Ermolaeva, M., Salzberg, S.L., Delher, A., Utterback, T., Weidman, J., Khouri, H., Gill, J., Mikula, A. and Bishai, W.
Whole genome comparison of Mycobacterium tuberculosis clinical and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tropess 1 to 14243)
Fleischmann,R.D., Alland,D., Eisen,J.A., Carpenter,L., White,O., Peterson,J., DeBoy,R., Dodson,R., Gwinn,M., Haft,D., Hickey,E., Kolonay,J.F., Nelson,W.C., Umayam,L.A., Ermolaeva,M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             285 GCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAAATCGCGCAGTGCGCCGGTCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6395 GCTGCTGCCATCGCGGCCCGGGGTTGCGGATCACAAATGCCAGAATCGCATTCCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    345 GCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         405 ATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 465 ATACCAAACGCTTCATTTTCCGAAGGCATGACCACACACTGGCAATCCGGTAGACCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
/product="lipopolysaccharide biosynthesis protein"
/proteinid="AAR83689.1"
/db_xref="G1:9105791"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 13334;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches 118; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 59.2; DB 1;
Pred. No. 4.9e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AE007070 14243 bp D. Mycobacterium tuberculosis CDC1551,
                                                                                            /gene="XF0879"
5398. .6510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AE007070.1 GI:13881920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               laboratory strains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    130; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complete genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5155 CGCGCCGG 6148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        525 AACGCTGG 532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AE007070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 21
AE007070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MIGERDSYRHYGANGREVTALQPLNLEIHAGEVFGIIGHSGAGK
STMLRMINRLEEPSGGHLLINGQDITVLDRMGLRALRRQIGMIFQHFNLLSSYTAGNV
AFPLKLTGASDAKINRRVAELLAWVGLEAHAWYPAQLSGGQKQRVGTARALAYRPQI
LLCDSYAEALDPQTTTAVLQLLARINTELGLTIVITHEMDVIRRICDRVAVLDTGRL
VETGLVTDVFLHPQHPTYRSFVMETBHIDTSALDQDFSLVNGRIVRLFIGTDYLYLPI
IGRVARFETGVDYNILSGRIDRIKETPYGQLTYVALSGGDPVAAQAAFAAAGIHIEELRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4321. 4635
/Agene="XkD877"
/note="kppthetical protein; identified by sequence
similarity; putative; ORF located using Glimmer/RBSfinder"
//codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="conserved hypothetical protein"
/protein.id="AAR8368.1"
/protein.id="AAR8368.1"
/brotein.id="ABR990"
/brotein.id="405790"
/translation="MSKMHFGPQAARYGRIGFIAMATPILMYHNIAKVPRQVRHIRGIYV
TPTAFARQWWLLHRLGYCCLSMSAAMPYLRGERSGRVMVVTLDDGYLDNLQAALPVLQ
                                          /product="ABC transporter permease protein"
/protein id="AAF83684.1"
/db_xref="61:9105786"
/db_xref="61:9105786"
/translation="MIPIPMIEPSTAAPGFFVNLDVDKWKDIGRATLDTLFMVGGALPP
ALALGLPLGIALYLCNTSQLRSHPLVYTLLALAVNLLRSVPFIILMTWIPWTLLING
TSIGIRGALLPLVIGAAPFYARLVESALREVDRGVVEAAQAMGATTWQLIMRVLLPEA
                                                                                                                                                                                                                                                                                                                                                                    //note="similar to GI|2635771 (percent identity: 48 %/query alignment coverage: 95.2 %/subject alignment coverage: 93.3 %); identified by sequence similarity; putative; ORF located uning Glimmer/RBSfinder/Start codon shift: 30*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="hypothetical protein; identified by sequence similarity; putative; ORF located using Glimmer/RBSfinder" /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /LTANSlation-MELTAIFFQSNHDVYAVLAHCSAYRARCIAHFTGSVSGPELHLE
LVLLMARQRSAQHNAVCRLPQKIEHTDQQREALAVQGSVKQVRRESERKNQRLCLIDY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MLGVLCRRRRFTCGHQTFGQFVQRGCLLFQMGEESRWQVVHIM
SPNLISTATSKFQANLFGGPYQLVFECVLCPWWQRRARIHLLVFVVWHGGEGRRPKRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="similar to GI|1783247 (percent identity: 29 %/query alignment coverage: 84.4 %/subject alignment coverage: 77.8 %): identified by sequence similarity; putative; ORF located using Glimmer/RBSfinder"
                                                                                                                                                                                                            RPGLIAGATITGIAVVGFTAMGGAIGSGGLGDVAYREGYLRSHTDVALVTVIALLMVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/product_ARC transporter ATP-binding protein"
/protein.id="AAR83685.1"
/db_xref="G1:9105787"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="hypothetical protein"
/protein_id="AAF83687.1"
/db_xref="G1:9105789"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="hypothetical protein"
/protein_id="AAF83686.1"
/db_xref="GI:9105788"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(3752. .4060)
/gene="XF0876"
complement(3752. .4060)
/gene="XF0876"
                                                                                                                                                                                                                                   QLIQMFGDWLVAHYSRR"
complement(2330, .3334)
                                                                                                                                                                                                                                                                                        /gene="XF0875"
complement(2330. .3334)
/gene="XF0875"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="XF0877"
4321.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4628. .5401
/gene="XF0878"
4628. .5401
/gene="XF0878"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
```

6336

404

ö 344 6216

524

464

CDS

FEATURES

```
/protein_id="AaK46524.i"
/db_xref="G1:13881927"
/translation="MADVSGAHTDVRPELRKLAQAILDGIDPAVRVAAAMASGGGPGT
/translation="MADVSGAHTDVRPELRKLAQAILDGIDPAVRVAAAMASGGGPGT
GCQQVWCPLCALAALTYGEOGHPLLYVIADHSLALLEVIRAIVDDIDRSAKPPPEGPP
GGGGTGASGGENTNGEGSMKSHYQAIPVTIEE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RIRASVERLSTLLTDGALVSAHLVLTPERVVAAEAVRTLGSLALMGVRVEELLVNQLL
VODBYEYEKSLDHPAFHWYABRIGGROAVLDDLATIGDVALVLVPHLAGEPIGPKA
LGGLLDSARRRQGSAPPGPLOPIVDLESGSGLASIYRLKLALPQLDPGTLTLGRADDD
LIVSAGGMRRRYRLASVLRRCTVLDAHLRGGELTVRFRPNPEWPT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MWYYLEKYIFWGPLFTLLGRPKVEGLEYIPSSGPAILASNHLAV
ADSFYLPLVRRRIFRTAKESEYFTGFGLKGWITNRWFYSVSGQVPIDFTNADSAGGALQ
ADSFYLLGQGKLLGMYPEGTRSPDGRLYKGKTGLARLALHTGVPVIPVAMIGTNVVNPP
GRKMLRFGRYVVRFGRPMDFSRFEGLAGNHFIERAVTDEVIYELMGLSGQEYVDIYAA
SVKDGRNAGGAGANNSTDAARIPETAAG"
complement(6235. .6639)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MLVVSTDQAHSLGDVLGIAVPPTGQGDPVRVLAYDPEAGGGFLD
ALALDTLALLEGRWLHVVETLDRRFPGSELSSIAPEELCALPGIQEVLGLHAVGELAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ARRWDRIVVDCASTADALRMLTLPATFGLYVERAWPRHRRLSIGADDGRSAVLAELLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VAITVLTLYTASTAIVLTGLDAWPTSRLVPAPARIRRLWLAVLIVAPATIWLEPIS
SNFAEGQINVYLMTLYIVDGEPRRTPWFRGLMLGLGTALKTTPAVFLLYFLLKRDGRA
ALTALASFRAVATLLGFYLAWRDSWEYWHTLHHTDRIGAAALNTDQNIAGALARLTIG
DDERFALWVAGSLLVLAATIWAMRRVLRAGEPTLAVICVALFGLVVSPVSWSHWVWM
LPAVLYIGLLGWRRRNALAMLSLAGVVLMRFTPIDLLPQHRETTAVWWRQLAGMSYY
WWALAVIVVAGLITVTARMTPQRSLTRGLTPAPTAS"
                              SVDGREPEFTIAASIFGVGAALVLDEYALILHLSDVYWEEDGRTSVDAVFAAVAGL
LINGLHBLIFERLPWRQAMWVLQTILIAGLVTLTPLAVVULKGKVWFGLLGBRYVV
LLVVGAVRLSRPHAWARWFYTRHPRKMRALQREEWWRRPVVRIKLMLQYVIAGTPR
MPDERAVDAQLDQDVRPAPPPERTAPILISGSVWSD"
                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation-"MSAWRAPEVGSRIGRRVLMCLLWLLAGYALGYVAWRLFGHTPYR
IDIDIYQMGARAWLDGRPLYGGGVLFHTPIGLNLPFTYPPLAAVLFSPFAWLQMPAAS
LTELVTRSFVRFIHRRAADGRPARWWQPRNVHIGSVHIHHVAFGVVLVMISGLTLVTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="identified by match to PFAM protein family HMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
/product="conserved hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="conserved hypothetical protein"
/protein_id="AAK46525.1"
/db_xref="GI:13881928"
                                                                                                                                                                                                                                                                                                                                            /product-"conserved hypothetical protein"
/protein_id="AAK46522.1"
/db_xref="G1:13881925"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product-"acyltransferase family protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="MT2239"
/note="1dentified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                               /note="identified by Glimmer2; putative"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /protein_id="AAK46523.1"
/db_xref="G1:13881926"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="MT2240"
complement(7886..8320)
/gene="MT2240"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(6235. .6639)
/gene="MT2238"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(7886. .8320)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(6627. .7769)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(6627. .7769)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(5406. .6149)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="MT2237"
complement(5406. .6149)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="MT2238"
                                                                                                                                                  4122. .5405
/gene="MT2236"
                                                                                                                                                                                                         4122. .5405
/gene="MT2236"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="MT2237"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="conserved hypothetical protein"
/protein_id="aak46520.1"
/db_xref="co1:13881923"
/db_xref="co1:13881923"
/translation="MRYFYDTEFIEDGHTIELISIGVVAEDGREYYAVSTEEDPERAG SWYNTHYLPKLEPPASQLMRSRQQIRLDLEEFLRIDGTDSIELWAWVGAYDHVALCQL WGPWTALPPTYELROLWEDRGCPRMPPRPRDVHDALVDARDQLRRFRLITSTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product-"conserved hypothetical protein"
protein_id="AAK46521.1"
/db_xref="G1" 1881954"
/translation-"MVALYGACICSQGGRSFLEVFHWLQHDIVDRGRLPLLCCLVAFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="mrskipdlqralegrfddhalmcrlhiahldqldamigaldeg
golwheptarrelnghlgpglgvgasatviselgadpanwrespsehlmswyrlcpgnh
esagkrhegartgnghldptvgcawaryengtlaetrrqyrrggfrspankr
aliayahklivimutatgrpygdlgadyftrmbpdrerrrlvakleagglgvtle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="AaK46519.1"
/db_xref="G1:13881922"
/translation="MNWTVDIPIDQLPSLPPLPTDLRTRLDAALAKPAAQQPTWPADR
ALAMRTVLESYPPYTYPSEITVRLQEQLAQVAKGEAFLLQGGDCAETFMONTEPHIRGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VRALLQMAVVLLYGASMPVVKVARIAGQYAKPRSADIDALGLRSYRGDMINGFAPDAA
AREHDPSKLVRAYANRSAAMILYRALTSSGLASLILVHUWNREPVRYSPGARKFBALA
TEIDRGLRFWSACGVADRWATATSSGLASLVLDYBRAMLRLSDGEDGEPQLFDLSA
HTWWTGERTPRQIDGAHIAFAQYIANPVGVKLGPNMTPELAVEYVBRLDPHNKPGRLTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VSRMGNHKVRDLLPPIVEKVQATGHQVIWQCDPMHGNTHESSTGFKTRHFDRIVDEVQ
GFFEVHRALGTHPGGIHVEITGENVTECLGGAQDISETDLAGRYETACDPRLNTQQSL
ELAFLVAEMLRD"
Salzberg,S.L., Delcher,A., Utterback,T., Weidman,J., Khouri,H., Gill,J., Mikula,A. and Bishai,W.
Direct Submission
Submitted (25-AR-2001) The Institute for Genomic Research, 9712
Medical Center Dr. Rockville, MD 20850, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="phospho-2-dehydro-3-deoxyheptonate aldolase,
putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                          //orce="similar to GB:AL123456; identified by sequence
similarity; putative"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="similar to GP:2687633; identified by sequence
                                                                                                                                                                                                  /organism-"Mycobacterium tuberculosis CDC1551"/strain-"CDC1551"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(3631. 3137)
/gene="MT2234.1"
complement(2631. 3137)
/gene="MT2234.1"
/note="Indentified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="IS1558', transposase"
/protein_id="AAK46518.1"
/db_xref="G1:13881921"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="MT2235"
complement(3147. .4085)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(3147. .4085)
                                                                                                                                                                                                                                                                                                    /note="clinical strain" complement(102. .767)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(1152. .2540)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(1152, .2540)
                                                                                                                                                                                                                                                                         /db_xref="taxon:83331"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                      complement(102. .767)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'trans _ table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="MT2233"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="MT2234"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="MT2234"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                              /gene="MT2233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DAGRGAAR"
                                                                                                                                                                                         source
                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
```

```
Details of M. tuberculosis sequencing at the Sanger Centre are available on the World Wide Web.

(URL, http://www.sanger.ac.uk/Projects/M_tuberculosis/) CDS have been renumbered from the original cosmid submissions but the old gene designations are in brackets after the new gene numbers. Gene prediction was based on a Hidden Markov Model of TB genes implemented in TBparse (Kroqh) supplemented with visual inspection of positional base preference in codons, especially where there is an increase in the observed/expected third position q. c. CAUTION: In some cases we may not have predicted the correct intilation codon. Where possible we choose an initiation codon (atg, gtg, or ttg) which is preceded by an upstream ribosome binding site sequence (optimally 5-13bp before the initiation codon). If this cannot be identified we choose the most upstream
                                                                                                                                                                                                                                                                                    tuberculosis sequencing and mapping teams, Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge CBIO 1SA Unite de Genetique Moleculaire Bacterienne, Institut Pasteur, 28 rue du Docteur Roux, 75724 Paris Cedex 15, France E-mail: parkhill@sanger.ac.uk On Jun 20, 1998 this sequence version replaced gi:2911087.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AANYGVYGARKVWLTLNREGIEVARCTVERLMTKLGLSGTTRGKARRTTIADPATARP
ADLVQRRFGPPAPNRLMVADLTYVSTWAGFAYVAFVTDAYARRILGWRVASTWATSMV
LDAIEQAIWTRQQEGVLDLKDVIHHTDRGSQYTSIRFSERLAEAGIQPSVGAVGSSYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="SPTREMBL:033355"
/translation="AEALAAGQRRIAKGERDFKDRVGFLRGRARPASTLITRFIADHQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NALAETINGLYKTELIKPGKPWRSIEDVELATARWUDWFNHRRLYGYCGDVPPVELEA
AYYAQRQRPAAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GHREGPDGLRWGVESICTQLTELGVPIAPSTYYDHINREPSRRELRDGELKEHISRVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /notes-FW2167c, (MTCY270.01), len: 346. Function: IS6110 transposase. FASTA best: TRA9_MYCTU P19774 putative transposase for insertion sequence (identical)"
                                                                                                                                                                      2 (bases 1 to 23400)
Barkhill.
Direct Submission
Submitted (11-JUN-1998) Submitted on behalf of the Mycobacterium
     Barrell,B.G.
Deciphering the biology of Mycobacterium tuberculosis from the
complete genome sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        888. .22687
/note="fragment designated v021. Does not represent a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Mycobacterium tuberculosis H37Rv"
/strain="H37Rv"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Mycobacterium tuberculosis H37Rv"
/strain="H37Rv"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Mycobacterium tuberculosis H37Rv"
/strain="H37Rv"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /orde="IS6110 insertion element"
complement(115. .1469)
/note="Inverted repeat at end of IS6110;
/note="Inverted repeat at end of IS6110;
GAGTCTCCGGACTCACCGGGCGGTTCA"
complement(157. .1197)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="hypothetical protein Rv2167c"
/protein_id="cna17494.1"
/db_xref="GI:3242294"
                                                         complete genome sequence
Nature 393 (6685), 537-544 (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(157. .>1197)
/gene="Rv2167c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:83332"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="taxon:83332"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref-"taxon:83332"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .>23400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="Y270"
22587. .>2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             initiation codon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . 988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                             TITLE
JOURNAL
                                                                                                                   MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                   AUTHORS
                                                                                         JOURNAL
                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product-"conserved hypothetical protein"
/protein_id-"ARK46526.1"
/db_xref="c1:13881929"
/db_xref="c1:13881929"
/translation="MADKTTQTIXIDADPGEVMKAIADIEAYPQWISEYKEVEILEAD
DEGYPKRARMIADDATKTDTILMSYEWPEDROSLSWTLESSSILKSLEGTYRLAPKGS
GTEVTYELAVDLAVPWIGMLKRKAERRLIDGALKDLKKRVEG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="mnsiqladetyvaadaarvsaavadrcswrrwwpdlrlqvyrddr
ADKGIRWTVTGALTGTWEIWLEPSWDGVLLHYFLHAEPTGVAAWQLARMNLARWTHHR
RVAGKKMAFEVKTVLERSRPIGVSPVT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCT 03-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lorde, S.T., Brosch, R., Parkhill, J., Garnier, T., Churcher, C.,
Harris, D., Gordon, S.V., Eiglmeier, K., Gas, S., Barry III, C.E.,
Tekala, F., Badcock, K., Basham, D., Brown, D., Chillingworth, T.,
Connor, R., Davies, R., Devlin, K., Feltwell, T., Gentles, S.,
Hamlin, N., Holroyd, S., Hornsby, T., Jagels, K., Krogh, A., McLean, J.,
Moule, S., Murphy, L., Oliver, S., Osborne, J., Quail, M.A.,
Rajandream, M.A., Rogers, J., Rutter, S., Seeger, K., Skelton, S.,
Squares, S., Sqares, R., Sulston, J.E., Taylor, K., Whitehead, S. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mycobacterium tuberculosis H37Rv complete genome; segment 97/162.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      332 TGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 392 AATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         272 ITCTCTGGCGCTGCCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="similar to GP:4539200; identified by sequence similarity; putative" /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 14243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Actinomycetales; Corynebacterineae; Mycobacteriaceae;
Mycobacterium; Mycobacterium tuberculosis complex.
1 (bases 1 to 23400)
                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="conserved hypothetical protein"
/protein_id="AAK46527.1"
/db_xref="G1:13881930"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4.8%; Score 57.2; DB 1; Length 1.
4.2%; Pred. No. 2.2e-06;
ve 0: Mismatches 98; Indels
/note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                    /gene="MT2241"
/note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11074 TrcGAGGAACACGATGCCCAAGCCCTCGACGTCC 11107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           452 TTCAGCCAGTACCATACCAAACGCTTCATTTTCC 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mycobacterium tuberculosis H37Rv. Mycobacterium tuberculosis H37Rv
                                                                                                                                                                                                                                                    complement(8425. .8814)
/gene="MT2241"
                                                                                                                                                                                                                                                                                                           complement(8425. .8814)
                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8971. .10782
/gene="MT2242"
8971. .10782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8971. .10782
/gene="MT2242"
                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AL021957.1 GI:3242293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 54.2%;
Matches 116; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
```

ò 셤 ò 유 ò

CDS

```
Pseudomonas aeruginosa serotype 06 putative O-antigen biosynthesis gene cluster, partial sequence.
AF498417 AC104736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MTLNTIALELVPPNLEGGKERALEDARKVVQYSAASGLDGRIRH
VMMPGMIAEDDDRPIPWQPKLDVLDFWSIIKPELAGVHGLCTQVTAFMDEPSLHRRLV
DLSDAGMEGIVFVGVPRTMQDGEGSGVAPTDALSLYRQLVANRGVIVIPTRDGEQGRL
                                                                          /translation="martrrrgmlalamlimlvPlargclrvrasitisPdDlvsgEi
Jaakrrnskordgpaldgovprsqvvsvnvrdsdgvvsgcyrrsblrtfreleqdamm
SDAAGvulsirrngvillegradlrssppadyelfvarprayrysmgdrieperv
OWKLKPGVVSTWSAQARYTDPNTRSFTGAGIMLGIAAFAAAGVVAVLAMIDRDRSPRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IQDPGNAAVADEQAFVQKLAGSEPARRRIAVDLYKRVLDGVADLGFPLSTHLEATYG
VSAAAFETFAEMLAYWSPAEPGKPD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NFKCSRGATYGMTQLLYSDAIVGFLREFARTTEHRPEILLSFGFVPKVETRIGLINWL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     451
                                                                                                                                                                                                                                                                                                                                                                                                                              complement(3629, .4534)
/gene="Rv2172c" (MTV021.05c), len: 301. Unknown. TBparse
/note="Rv217zc, (MTV021.05c), len: 301. Unknown. TBparse
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              272 TTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           332 TGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       392 AATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pseudomonas aeruginosa
Bacteria: Proteobacteria; gamma subdivision; Pseudomonadaceae;
Pseudomonas.
                                                                                                                                                                                             2991. 3023
/genem="lppM"
//note="P200013 Prokaryotic membrane lipoprotein lipid
attachment site"
                                                                                                                                                                                                                                                                                                                                              key,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 14734)
Raymond, C.K., Sims, B.H., Kas, A., Spencer, D.H., Kutyavin, T.V.,
Ivey, R.G., Zhou, Y., Kaul, R., Clendenning, J.B. and Olson, M.V.
Genetic variation at the O-antigen biosynthetic locus in
                                                                                                                                                                                                                                                                                                                                         Crystallins beta and gamma 'Greek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 23400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product-"hypothetical protein Rv2172c"
/protein_id="caa17476.1"
/db_xref="G1:2911092"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20252 TICGAGGAACACGAIGCCCAAGCCCTCGACGICC 20285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4.8%; Score 57.2; DB 1; 54.2%; Pred. No. 2.5e-06; tive 0; Mismatches 98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   452 TTCAGCCAGTACCATACCAAACGCTTCATTTTCC 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="SPTREMBL:053506"
                                                    /db_xref="SPTREMBL:053505"
  /protein_id="CAA17475.1"
/db_xref="G1:2911091"
                                                                                                                                                                                                                                                                                                                                                                                      complement(3629. .4534)
/gene="Rv2172c"
                                                                                                                                                                                                                                                                                          3162. .3209
/gene="lppM"
/note="PS00225 Cry
motif signature"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:20560066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pseudomonas aeruginosa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 54.2*
Matches 116; Conservative
                                                                                                                                                                    TASGDPPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AF498417.1
                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 23
AF498417/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                    transposase FASTA scores: spt:|008155|008155 HYPOTHETICAL 12.0 KD PROTEIN (108 aa) opt: 697 z-score: 903.5 E(): 0; 100.0% identity in 108 aa overlap. TBparse score is 0.928" /codon_start=1 /frans_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ilpoproteincontainsputative signal peptide and appropriately positioned PS00013 Prokaryotic membrane at Dipoprotein lipid attachmentsite. Has hydrophobic stretch at C-terminus and also contains PS00225 Crystallins beta and gamma 'Greek key' motif signature. Unknown but similar to TBparse score is 0.895"
                                                                                                                                                                                                                                                                                                                  /db_xref="SWISS-PROT:Q50686"
/translation="MSGGSSRRYPPELRERAVRWVAEIRGQHDSEWAAISEVARLLGV
GCAETVRKWVRQAQVDAGARPGTTTEESAELKRLRRDNAELRRANAILKTASAFFAAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="SPTREMBL:053503"
/translation="MPLSDHFDRMLDOIESALYAEDPKFASSVRGGGFRAPTARRRLQ
/translation="MPLSDHFDRMLDOIESALYAEDPKFASSVRGGGFRAPTARRLQ
AAALFIIGLGMLVSGVPKFETMIGSFPILSVEGFVVMFGGVVYAITGPRLSGRMDRGG
SAAGASRQRFRGGGGSFTSSNEBDRFRRRFDE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="SPTREMBL:053504"
/translation="MAIFLIDLPPSDMERRLGDALTVYVDAMRYPRGTETLRAPWWLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HIRRRGWOAVAAVEVTAAEQAEAADTTALPSAAELSNAPMLGVAYGYPGAPGGWWQQQ
VVLGLORSGFPRLAIARLMTSYFELITELHILPRAQGRGLGEALARRLLAGRDEDNVLL
STPETNGEDNRAWRLYRRLGFTDIIRGYHFAGDPRAFAILGRTLPL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(1563...1967)
/gene="Rv2169c"
/note="Rv2169c, (MTV021.02c), len: 134. Unknown. TBparse
score is 0.934"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2233. 2853
/gene="Rv2170"
/note="Rv2170, (MTV021.03), len: 206. Unknown. TBparse
score is 0.905"
                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="Rv2168c"
/gene="Rv2168c"
/note="DRAI:TTTAAA. Site linking fragments L-T"
complement(1442. .1469)
/note="Inverted repeat at 5'-end of IS6110"
complement(1563. .1967)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="Rv2171, (MTV021.04), len: 227. Probable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(1973. .1979)
/note="possible RBS, aaggagg, for Rv2169c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  938. .2942
'note="possible RBS, aggagga, for Rv2171"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="possible RBS, aggagga, for Rv2170"
                                                                                                                                                                                                                                             /product="hypothetical protein Rv2168c"
/protein_id="CaA17472.1"
/db_xref="GI:2911088"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
/product="hypothetical protein Rv2169c"
/protein_id="CAA17473.1"
/db_xref="G1:2911089"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'product="hypothetical protein Rv2170"
'protein_id="CAA17474.1"
'db_xref="G1:2911090"
complement(1092, .1418)
/gene="Rv2168c"
complement(1092, .1418)
/gene="Rv2168c"
/forte="Rv2168c" (MTV021.0
                                                                                                                                                                                                                                                                                                                                                                                                                 complement(1141. .1146)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 to . Tapaise sco.
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="Rv2170"
/2233. 2067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="Rv2169c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2949. .3632
/gene="lppM"
2949. .3632
/gene="lppM"
                                                                                                                                                                                                                                                                                                                                                                                           LDRPAR"
                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
            gene
```

RBS RBS RBS

CDS

us-09-674-277-2.rge

```
YETANS 1 & LION-"MTKSELIERI VTHQCQLSAKDVELA IKTMLEOMSQALATGDRIE
RRFGSFSLHYRAPRVGRNPKTGESVRLDGKFVPHFKPGKELRDRVNEPE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MOWLGRILTAVFVLVVALVVVLVFVLENQNSVSLAFLGWHTPDGP
LSLFVSLAFILGGLGGLLSGALLRLRGRRQKSLRSESTSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /protein_id="aam27815.1"
/db_xref="GI:20560070"
/translation="MTEKNFPSYKAKSGEFDLIEIMSGLWSLRWLIALLAVLPVLLAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RQFFRDVY I PSLEEGASVGSRDQLYALLMNSVT IQKPSKEDSERYTVV I ERHDPSQAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EWGEKYIGIAVKRSMQEMQEGVRREFQVKNRNIQQOIDILRETAKARREDRISRLKEA
ALRAREALKENPPLIEGQVDQQLSSIMEGGLMYMRGAKAIRAEIKTLQDRVSDDPFIP
ALRGLQERYALLEGITALLDKVAVFRQDGTIEVPDDPVRPRKGIVLILSMLAGGFLGV
AVALAILMVRGGFRRTVDAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GKVLKKGDIVIYESTVYPGATEEDCVPVLEKFSGLRFNEDFFAGYSPERINPGDKEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RVSSIKKVTSGSTPEIAELVDSLYREIITAGTHKASSIKVAEAAKVIENTQRDLNIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INELAIIFNRMGIDTEAVLKAAGTKWNFMPFRPGLVGGHCIGVDPYYLTHKAQSIGYH
PEIILAGRRLNDGMGAYVVSQLVKAMLKRRIHVDGARVLLMGLTFKENCPDLRNTKVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DIVRELAEYNIQVDVFDPWVSAEDAMHEYGITPVGTPSHGAYDGIILAVAHSEFKNMG
AENIRKLGKAEHVLYDLKYLLDEDKSDLRL"
3670. 4695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VYLFITKPVYEARVSTLPPSLSDIAGFNLGRSENGLPAFSANGVYSIFVRNLQSEETR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'translation="MKDLKVAVVGLGYVGLPLAVEFGKKRTVVGFDINQGRIAELRQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DSTLEVDAAELKEASELSFTFNLQDLQKCNVFIVTVPTPIDEHKQPDLTPLVKASES
                                                                                                                                                                                                                   Submitted (04-APR-2002) Genome Center, University of Washington, Box 352145, Gestile, WA 98105-2145, USA ON May 13, 2002 this sequence version replaced gi:17975265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1150. .4424
/note="ORF_4; wzz; similar to chain length determinant
                                                                                                                                Raymond, C.K., Sims, E.H., Kas, A., Spencer, D.H., Kutyavin, T.V., Ivey, R.G., Zhou, Y., Kaul, R., Clendinning, J.B. and Olson, M.V. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1364. .3632
/note="ORF_5; similar to UDP-glucose/GDP-mannose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'translation="EKDAMKELRKQEVESAGPTTIGDLIRAQMENQG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="ORF_1; C-terminal coding region of rpsA"
                                                                                                                                                                                                                                                                                                                               1. .14734
/organism="Pseudomonas aeruginosa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'note="ORF_3; hypothetical orfA"
                         Bacteriol. 184 (13), 3614-3622 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="RpsA"
/protein_id="AAM27812.1"
/db_xref="G1:20560067"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
/protein_id="AAM27814.1"
/db_xref="G1:20560069"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /protein_id="AAM27813.1"
/db_xref="GI:20560068"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'protein_id="AM27816.1"
'db_xref="GI:20560071"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'note="ORF_2; himD/ihfB"
                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref-"taxon:287"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
/product="HimD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="wbpO"
                                                                                                                                                                                                                                                                                                                                                                                /serotype="06"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dehydroqenase"
Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product-"Wzz
                                                                                                      (bases 1 to 14734)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein"
                                                MEDLINE
PUBMED
                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                         REFERENCE
                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                         COMMENT
```

```
/protein_id="AAM27819.1"
/db_xref="G1:20560074"
/td_xref="G1:20560074"
/tdanslation="MickHSLIVFLEKSFPAILFLVGLSVFTRLLSPGEYGYYSLTII
VVGFIAPVFLOWYALGVGRY_LERCSDDQARARILGTRARISFLVSLVIIFVFFLLWEW
REBIGFSILYYMVAEGVGRY_LCLAQAWHDLNIKIQNALLQPLYYGKMLLIKGAGSFFTGVLLV
YFGFGYDGLLLGFLVSLVLATIFFQDAWRGVSWALVDKEQLTRLFATGAPLTLTFLFA
PIVNASDRFFTGAFLGAPVYSPAGYYSVSYDLAQYSYGYNASVYHLAAFPLYWEKLSKGL
PQTQDQLRKFFIGAFLGAGCLAWYAPELSGSIMGEFFRGALKIIPLISAFL
GALKSFYFDYSFQLASATRVQVYTVANSAVNDVYFNILLIPPEFGIVGAAVSSYMAFSS
ALILSIFFGRRRFPMMALPGRDAMKIALSVLLMAVSVASFSLESAFFGLVVKVVLGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation-"MIFTLVRLDESSVVSMSGAIFAFESRLVLQVLNIRGACDSLFSS
RSTFSMIVFLFFTHCFLFFMV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAM27820.1"
/db_xref="G1:20560075"
/translation="MKALLEGLGTRGIDWHMSEALVSAYPPARRLDRPIWLLRELLHR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NHEYPVIGAQCHTALLDTPERWPRVDSFQHWMMAMDVQCYMPDDILVKVDRAAMANSL
ETRVPLIDHRVFELAWRMPLHMKIRNGKGKMLLREVLYRHVSRELIERPKKGFSVPVS
DWLRGPLKEWAESLLDERRLQQEGYLDSRLIRRIWNDHLAGRRDHSRRLWSVLMFQAW
                                                                                                                                                                                                                                                                                                                                       SVPRSINDPITSNATNIDGFLNMLIAARDAKVQSFTYAASSSTYGDHPGLPKVEDTIG
KPLSPYAVTKYVNELYADVFSRCYGFSTIGLRYFNVFGRRQDPNGAYAAVIPKWTSSM
                                                                                                                                                                                                                                                                                                                                                                                                                 IQGDDVY INGDGETSRDFCY IENTVQANLLAATAGLDARNQVYNIAVGGRTSLNQLFF
ALRDGLAENGVSYHREPVYRDFREGDVRHSLAD ISKAAKLLGYAPKYDVSAGVALAMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DIEIPLSHLFRDHPEWKLRIVSDRPPEFKVIPAEKVEFIRWTETNEVETIAGMDIGIM
                                                                                                                                                                                                                                                             /translation="mmSRYEELRKELPAQPKVWLITGVAGFIGSNLLETLLKLDQRVV
GLDNFATGHQRNLDEVRSLVSEKQWSNFKFIQGDIRNLDDCNNACAGVDYVLHQAALG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LPQVIGSYGSDVVILQRELLSTIPTLEFLTKAPRILDVDDAIMLHRRGIAANSIARRV
DHIVCGNQYLADYFGQFGRPTTIIPTGVDTLRFLPRRERRENRYIGWSGTSGGYRFLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PLADDLWSRGKCSYKMLLYMACGLPVVVSEYGMNRDVLARGFIGYGAVDDEGWYESLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAPILVHARLAVLELSPAGSQPMHSDCGRYVLIYNGEIYNHLALRARLSEAGVTHGWR
GGSDTETLLACFAQWGVESTLKLIVGMFALALWDRQEKTITLARDRMGEKPLYWGWON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GVLFFASELKALKEHPLFRGDIDRDALALFLRYGYVPAPYSIYKGIGKLRAGSYLVLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ERSLNETCEPAAYWSANAAIEEALSNPFQGTDAEAVDLLESQLRTSISDQMVSDVPLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation-"MCGIAGFWNITGTLLGDNARVARQMAAAIHHRGPDESGIWYEAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AFLSGGVDSSTVVALMQQQSSRPIRTFSIGFDEPGYDEAVYAKAVAEHIGTDHTELYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NSKDALDVIPSLPKIYCEPFGDSSQIPTLIVSGLARQQVTVALSGDGGDELFGGYNPY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRVWRMLERFPHSMRRFASAFAQDLPLPEKLGKLRDVFASRTAEELFYRLNSHWH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="ORF_11; similar to Glycosyl transferases group 1"
/codon_start=1
/transl_table=11
/protein_id="AAM27822.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="ORE_8; similar to Polysaccharide biosynthesis protein; potential multiple membrane spanning domains."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="ORF_9; similar to Glycosyl transferases group 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALVKDPEARVRAGONGRDIIERHYSLDVVCDLWAMVIGSVAPGKGTR'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="ORF_10; similar to Asparagine synthase"
/note="ORF_6; similar to NAD dependent
epimerase/dehydratase family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VYLAAMIALDVSGMRTFLKSKLIR"
6517. .7488
                                                                                                     /trans1_table=11
/product="wbpp"
/protein_id="AAM27817.1"
/db_xref="GI:20560072"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAM27818.1"
/db_xref="G1:20560073"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
/protein_id="AAM27821.1"
/db_xref="G1:20560076"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4692. .4889
/note="ORF_7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . .7488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WY IMFLK"
```

CDS

CDS

CDS

CDS

```
/translation="%PKLEEGVEGLVHVSEMDWTNKNIHPSKVVQVGDEVEVQVLDID
EERRRISGIKGCKSNPWEDPSSQFRKGDRISGSIKSITDFGIFIGLDGGIDGLVHLS
BISWHEVGEEAVRRFKKGDELETVILSVDPERERISLGIKOLEDDPFSNYASLHEKGS
IVRGTVKEVDAKGAY 1SLGDDIEGIIKASEISRDRYEDEARNVLKEGEEVEAKIISIDR
KSRVISLSVKSKDVDDEKDAMKELRRQEVESAGPTITGDLIRAQMENQG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MTKSELIERIVTHQGQLSAKDVELAIKTMLEQMSQALATGDRIE
IRGFGSFSLHYRAPRVGRNPKTGESVRLDGKFVPHFKPGKELRDRVNEPE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation-"MSGLWSLRWLIALLAVLPVLLAIVYLFITKPVYEARVSTLPPSL
SDIAGFNLGRSENGLPAFSANGVYSIFVRNLQSEETRRQFFRDVYIPSLEEGASVGSR
DOLYALLMNVYTIQKPSREDSERYTVYTRHDPSQAABWGERTYGIAVKRSMQEMQEG
VRREFOVKNNIVQOLJDILEETAKARREDRISRLKEALRYARASKLENPPLIEGQVDQ
OLSSIMGGGLMYMRGAKAIRAEIKTLQDRVSDDPFIPALRGLQEKYALLEGLFILLNLDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation-"MKDLKVAVVGLGYVGLPLAVEFGKKRTVVGFDINQGRIAELRQG
IDSTLEVDAAELKEASELSFTFNLQDLQKCNVFIVTVPTFIDEHKQPDLTPLVKASES
                                                                                                                                                                                                                                                                                                                                         2 (bases 1 to 16736)
Belanger, M. and Lam, J.S.
Belanger, M. and Lam, J.S.
Belanger, M. and Lam, J.S.
Submission
Submitted (26.00V-1997) Microbiology, University of Guelph, Guelph, Ont NIG 2M1, Canada
                                                                                                                                                                   Belanger,M., Burrows,L.L. and Lam,J.S.
Functional analysis of genes responsible for the synthesis of the
B-band O antigen of Pseudomonas aeruginosa serotype 06
                                                                                                    Bacteria; Proteobacteria; gamma subdivision; Pseudomonadaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. .16736
/organism="Pseudomonas aeruginosa"
                                                                                                                                                                                                                                                                        Microbiology 145 (Pt 12), 3505-3521 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="AAF23994.1"
/db_xref="G1:6690127"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="AAF23995.1"
/db_xref="GI:6690128"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAF23996.1"
/db_xref="G1:6690129"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein_id="AAF23997.1"
/db_xref="G1:6690130"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:287"
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="Ihf-Beta"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1954. .2811

/gene="wzz"

1954. .2811

/gene="wzz"

/codon_start=1

/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product-"Wbpo"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /serotype="06"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="Wzz"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                  Pseudomonas aeruginosa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /strain="IATS
     GI:6690121
                                                                           Pseudomonas aeruginosa
                                                                                                                             Pseudomonas.
1 (bases 1 to 16736)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="rpsA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene-"rpsA"
                                                                                                                                                                                                                                              lipopolysaccharide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VAVFRODGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .805
  AF035937.1
                                                                                                                                                                                                                                                                                                                          10627048
                                                                                                                                                                                                                                                                                              20090474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                        ORGANISM
                                                                                                                                                                        AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
TITLE
                                                                                                                                                                                                                                                                        JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
VERSION
KEYWORDS
SOURCE
                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                       PUBMED
                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11655 TGGACGATACTTTCGATCGCAAAATCACGCTCTGCCAACGCTCGCCCAGCACCTCCCATC 11596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11475 ACATCGGTCGTCACACGCCGCCCCCCCCCCCCCCCCCCACCAGGACCTTAGGAAGC 11416
                                                                   LAARWAĞIGGIIWGVRTTDLQBGGKSTTVLVRKVCAWLSGFLPKYIYCAABASRRSHI
AVGYBASRULVIPWGFDLTRLQATDBCBALRSGAĞIBASDIVIGSLGRFHPVKDHAS
FVAAĞLLAPRYSRLKFLLVGRELLSSNABLQRLIBATGYABRFILLGERQDVAŞCLK
AWDIFCLHSRFTGFPWYLGERMAMĞLPCITTDVGDAYLLGWDGVVYPALDPNALGKG
IEDLIALDVBGRRALGBAARQRIYSNFTMASASQRFWSLTRDILVKRKA"
                                                                                                                                                                                                                                                                                                                                      /translation="MKPVLLMIVNDPAFFMSHRLPVAVGAQQAGFQVHIATRPGDAVK
KIVSQGFLHHELPLSRSGKNPFSELYLLTYVWRLLMRLRPDVLHLVTIKPVIYGGIAA
RLAPVKGVVAAVSGLGFVFMAKGLKACAFRACVAWLYRRALGKKKLRVIFQNPDDRDA
                                                                                                                                                                                                                                                                                                                                                                                                                                        LRQRSVPAHFQLVGDLDPGNPTSIEPSELERWRSEGTIECLGYRQDIASVFARSHIVV
LPSYREGIPRVLVEASACGRAVVTTDVPGCRDAIQADVTGLLVPVRDSAALADAIQRL
IESPELRKKWGAAGRALAERDFAIESIVQQHLDIYRALGSGA"
                    /translation="MTTVKVIHVIAGLKKVGGAELMLKRLIETQNGGSEFEHSIISLS
DLGEFGGGLIEAGISVDVLGMTSMRDMPRVLLRLIWIFFERRPDIVQTWMYHSDLLGG
                                                                                                                                                                                                                                                                                                                                                                                                                  LIGLGAITFEKSVLIRGSGVDLTQYQPAPESPETPVVTLAARLLRDKGVLEFVEAANI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANVQGTLDLAREAVSRGVRRFIFISSIKVNGEGTEPGRPYTADSPPNPVDPYGVSKRE
AEQALLDLABETGLEVVIIRPVLVYGPGVKANVQTMMRWLKRGVPLPLGAIHNRRSLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SLDNLVDLIITCIEHPAAVGQVFLVSDGEDLSTTELLRRMGRALGAPARLLPVPASWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCT 12-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'translation="MLLGELGSSVVWDAESAIDTVVHCAARVHVMSETASDPLVEFRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10568. .11698
/note="ORF_12; similar to Glycosyl transferases group 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AF035937 16736 bp DNA linear BCT 12-JAN-20 Pseudomonas aeruginosa strain IATS O6 RpsA (rpsA) gene, partial cds; Ihf-Beta, Wzz (wzz), and Wzx (wzx) genes, complete cds; and wbp gene cluster for O-antigen biosynthesis, complete sequence. AF035937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAAKVLNRQAFARRLCGSLQVDIMKTRQVLGWTPPVGVDQALEKTARSFLDRQ"
12654. .13694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  group 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             294 ATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGGCCGGTCCATGCAGACACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11595 TICTIGCGCAACTCTGGCGACTCAATAAGACGCTGAATGGCATCCGCCAGAGCAGCAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         414 GTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="ORF_14; similar to Glycosyl transferase potential multiple membrane spanning domains."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           474 GCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCG 522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; DB.1; Length 14734; . 2.6e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches 145; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11839. .12657
/note="ORF_13; similar to NAD dependent
epimerase/dehydratase family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'note="ORF_14; similar to
                                                                                                                                                                                                                                                                  /transl_table=11
/protein_id="AAM27823.1"
/db_xref="G1:20560078"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="AAM27824.1"
/db_xref="G1:20560079"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="AAM27825.1"
/db_xref="G1:20560080"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'transl_table=11
                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  144; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local
Matches 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 24
AF035937/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
```

33

```
12295 TTCTTGCGCAACTCTGGCGACTCAATAAGACGCTGAATGGCATCCGCCAGAGCAGAAA 12236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12355 TGGACGATACTTTCGATCGCAAAATCACGCTCTGCCAACGCTCGCCCAGCAGCTCCCATC 12296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12175 ACATCGGTCGTCACAACCGCACGCCCGCACGCCGACGCTCGACCTTAGGAAGC 12116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RLAPŸKGVVAAVSGIGFVFWAKGLRACAFRAVAMIYRRALGKKKLRYIFQNPDDRDA
LIGIGAITFEKSVLIRGSGVDLTQYQPAPESPETPVVTLAARLLRDKGVLEFVEAANI
LRORSVPAHTGLVGDLDPGNPTSIBPSELEWRSEGTIECLGYRQDIASVFARSHIVV
LPSYREGLPKVLVEASACGRAVYTDVPGCRDAIQADVTGLLVPVRDSAALADAIQRL
IESPELKKKMGAAGRALAERDFAIESIVQQHLDIYRALGSGA"
                                                                                                                                              RAPILVHARLAVLELSPAGSQPHISDCGRYVLIYNGEIYNHLALRARLSEAGVTHSWR
GGSDTETLLACFAQWGVESTLKLTVGHFALALWDRQEKTITLARDRMGEKPLYWGWQN
GCSDTETLLACFAQWGVESTLKLTVGHFALALWDRQEKTITLARDRMGEKPLYWGWQN
GVEFASELEKALKEHPLFRGDIDRDALALFLRYGYVPARYSIYKGIGKLRAGSYLVLS
ERSLWETCEPAAYWASNAR PERLASNPFGGTDAFAVDLLESQLRTSISDQWSDVPLG
AFLSGGVDSSTVVALMQQSSRPIRFFSIGFDERGYDEAVYARAVAEHIGTDHFELYN
NSKDALDVIPSLPKIYCEPFGDSSQIPTLIVSGLARQOYTVALSGDGGDELFGGYNPY
                                                                                                                                                                                                                                                                                                                                                                     OFTPRVWRMLERFPHSMRRFASAFAQDLPLPEKLGKIRDVFASRTAEELFYRLNSHWR
NHEFFVIGAGGHTALLDTBERNPRVDSFQHWMADNYQGYRDDDILVKYDRAMANSL
ETRYPLIDHRYFELAMEMPLHKT RNGKGKTLREVLYRHYSRELIERPKGESVPVS
DWLRGPLKEWAESLLDERRLQOEGYLDSRLIRRIWNDHLAGRRDHSRRLWSVLMFQAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MTTVKVIHVIAGLKKVGGAELMLKRLIETQNGGSEFEHSIISLS
DLGEFGQGLIEAGISVDVLGMTSMRDMPRVLLRLIWIFRERRPDIVQTWMYHSDLLGG
LAARWAGIGGIIWGVRTTDLQBGGKSTTVLVRKVCAWLSGFLPKYIVCAAEASRRSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="mkPvLLMIVNDPAFFWSHRLPVAVGAQQAGFQVHIATRPGDAVK
KIVSQGFLHHELPLSRSGKNPFSELYLLTYVWRLLWRLRPDVLHLVTIKPVIYGGIAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AMDIFCLHSRTEGFPNVLGEAMAMGLPCITTDVGDAAYLLGNDGVVVPALDPNALGKG
IEDLIALDVEGRRALGEAARQRIYSNFTMASASQRFWSLYRDILVKRKA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AVGYNASRMLVIPNGFDLTRLQATDEQRSAIRSGAGIEASDIVIGSLGRFHPVKDHAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FVAAAGLLAPRYSRLKFLLVGRELLSSNAELQRLIEATGYAERFILLGERQDVASCLK
                                                                                                                   /translation="MCGIAGFWNITGTLLGDNARVARQMAAAIHHRGPDESGIWYEAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            354 TCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCGCCC 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        294 ATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCGGTGCGCCGGTCCATGCAGACACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 16736;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 57; DB 1; Length 167
Pred. No. 2.7e-06;
0; Mismatches 145; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAF23993.1"
/db_xref="G1:6690126"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAF23992.1"
/db_xref="G1:6690125"
                                      /protein_id="AAF24002.1"
/db_xref="G1:6690135"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
/product="WbpU"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product-"WbpT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10073. .11224
/gene="wbpT"
10073. .11224
/gene="wbpT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11268. .12398
/gene="wbpU"
11268. .12398
/gene="wbpU"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="wbpV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ά
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /proteil_id="AaF24000.1"
/proteil_id="AaF24000.1"
/db_xref="G1" [6500133"
/translation="MLGKHSLVFLFKSFPAILTLVGLSVFTRLLSPGEYGVYSLTII
/translation="MLGKHSLVYFLPECSDDQARARLLGTARAISFLVSLVI FVTFLIWEW
REBIGFSTLYXWFQWYALGVGFLCLAQAWHDLMLK IONAILOFLTYGKMLI KGAGSFFTGVLLV
YGGFGVDGILLGTLVSLVAITFFCDAWRGVSWALVDKEQLTRLFPATGAPLTIFLFA
FTVNASDRRFIGAFLGDAWAGVYSVSYDLAQYSVGTVASVVHHAAFPLVWEKLSKSGL
POTQDDLKTFFTFTAVVSPAAGGLAWAREISGSTWGEBFREGALKI IPLISLSAFL
GALKSFYFDYSFGLASATRVQVVTVAVSAVVDVYNILLIPEFGTVGAAVSSVWAFSS
ALLISIFLGRRVFPWRALGGGAMKI ALSVLLMAVSVASFSLESAFFGLIVVKVVLGGG
YYLAAMIALDVSGMRTFLKSKLIR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="are:2008.1"
/db_xref="G1:6690131"
/db_xref="G1:6690131"
/db_xref="G1:6690131"
/translation="MMSRVEELREELPAQPKVWLITGVAGSIGSNLLETLIKLDORVV
/translation="MMSRVEELREELPAQPKVWLITGVAGSIGSNLLETLIKLDORVV
/translation="MMSRVEELREER"
CELDNFATGHQRNLDBYRSLASEROWSNFRFIGGDIRNLDDCNNACAGVDYVLHQAALG
SVPRSINDPTSNATNLIANTAARDAKVOSFTYAASSSTYGDHPGLERVEDTIG
RRLESPRYWTKYNELYADVFSRCYGFSTIGLRYFNVFGRRQDPRGAYAAVIPKWTSSM
IQGDDYINGDGFTSRDFCYIENTVQANLLAATAGLDARNQYYNIAVGGRTSLNQLFF
MAINDCLABROVSYHREPVYRDFREGDVRHSLADISKAAKLLGYAPKYDVSAGVALAMP
WYIMFLR"
                                                     INELALIFURMGIDTEMPATALE ANTUKULUH ALLINGA SARANNA TERNIYKULUH ALLINGA SARANNA TERNIYKULUH ALLINGA SARANNA TERNIYKULUH ALLINGA SARANNA TERNIYANGA SARANNA SARAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALVSAYPPARRLDRPLWLLRELLHRLPQVIGSYGSDVVILQRELLSTIPTLEFLTRAP
RILDVDDA.IWLHRRGIAANSIARRYDHIVGGNQYLADYFGGFGRPTTIIPTGYDTLRF
LPRERRENRVIGWSGTSGGYRFLYDIEIDLSLHFRDHPEWRKLRIVSPRPPEKVIPA
EKVEFIRWTETNEVETIAGWDIGINFLADDLWSRGKCSYKALLYMAGGLPVVVSEYGM
NRDVLARGFIGYGAVDDEGRYESLAALVKDPEARVRAGQNGRDIIERHYSLDVVCDLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="WbpQ"
/protein_id="AAF23999.1"
/db_xrefe="G1:6690132"
/translation="MIFTLVRLDESSVVSMSGAIFAFESRLVLQVLNIRGACDSLFSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="GI:6690134"
/translation="MIAELPAVRVRAFTQGRSVPSSRFRVKALLEGLGTRGIDMHMSE
IGKVLKKGDIVIYESTVYPGATEEDCVPVLEKFSGLRFNEDFFAGYSPERINPGDKEH
RVSSIKKVTSGSTPEIAELVDSLYREIITAGTHKASSIKVAEAAKVIENTQRDLNIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein_id="AAF24001.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STESMIVELFETHCFLFFMV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5392. .5589
//gene="wbp0"
5392. .5589
//gene="wbp0"
//codon_start=1
//transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="wbps"
8193. .10076
/gene="wbps"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
/product="WbpR"
                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7142. .8188
/gene="wbpR"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                          /product-"WbpP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMVIGSVAPGKGTR'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="Wzx"
                                                                                                                                                                                                                                                                                            4370. .5395
/gene="wbpP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5596. .7020
/gene="wzx"
5596. .7020
/gene="wzx"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7142. .8188
/gene="wbpR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8193. .1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
```

ö

293

353

```
/translation="MEWLPEVGKRGWVVLTKDGKISNNRLERIAVARAÖIKMFTFASQ
SLSGEEWAGILLQAIVPWKRFVSKHPAPFIAKIYRDGHLDMWKDAQMLLEELQEF"
                                                                                                                                                                                                                                                                                                                                                                                                   LITGGDSGIGRAVAIAYAKEGADVAFVYLSEHDDAEETKNLVEEGGRRAVSIAGDITD
BARCQRAIQOTVDEEGKLLDILNNAAKGOHQOES EDITKEGLEGLERTEKTHISMEYLTK
BAIKHLKKGSAIINTSVTAYKIGSPOLLDYSSTKGAYTVAFTRSLSGNLISKGIRVNAV
APGPIWTPLIPSTFPAEKVETFGKOVPMQRAQQPEEVVAFSYTVEASDDSSYMSGQVLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="MSSLKPLQGTELVDCARANAKQGIETAAYQCGYGDDLNRFAGEL
KACEEMULOVKELNELITDQDMILNLGTGEIIAPDTASEL"
Complement(3821. .5221)
/gene="all5184"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VDOMSSDDRARLFDELPAKVVNHLLEQLSPTERQATALMLGYBADTAGRIMTLEFTAL
KENNTIGQALERIRSLANASEMIYYLYVTDQARRLTGIVSLRELVTSQPEQTIGEVMT
RDVIFVNTDTHQEEVARLIQRYDFLAVPVVDRQQLLVGIVTVDDVIDILEEETTKDIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALGGGVQSSGDNYFQADLAFFRRYLALLITNYVTGTITKSQEDILTKVYTLTA
FIPLLTGTGGNVGAQSSTVVIRGMNTDEIRSLGPLQVIGREAIAGALLGGMLGSIATI
WAYFLQGRIEVAIAVGASLIAISVLASISGSALPFLFRYLRLDPALASAPFITTAVDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CELAQAFRRLGSEVVLIHSGSHVLNKEDNDAAQIVQQTLIKEGIRLVLNAKVEEVVTV
TEGRRLYFSTNGHRDSVTVDBILVGAGRSPNVEGLNLEAVGVKYDKRRGVEVNDYLQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VAHVGLYESQDVETIKIPFSSVDRAIADGQEDGFLKIHHKKGSDEIVGATIVASHAGE
MISEVTTAIVNKIGLNKLSNVIHPYPTQAEAIKKAADTYRRTLLTPRTKKLLGFLTKF
                                                                                                                                                                                                                                                                                                                                                                                 /translation="MAEKQTLQPPQQQQPPGTESKMQPKPQADDAQYRGSGKLKDKVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MTETNNINSTLQDVSRRELRDLVRTQMRMILEAGDLQGAKAILV
PVOPADIAEAIEGLPETMHALAFRLLSKDEAIEVYEYLDYSVQERLIEELKSQEVRDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGTAGLVVAAGAAGLGLGLKVALIEKHLMGGDCLNVGCVPSKTIIRSSRVYGEIMNG
KNLGVNIPSQIDIDFPAVMARMRRVRAGISHNDSAERFASLGVDVFLGSGRFASSNTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EVAGKTLKFKKAVIATGARATKPAIIGIEQAGYLTNETVFSLIQRPEKLAVIGGGPIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TNPKIYAAGDICMDWKFTHAADAAARIVIKNTLFSPFGLGRSRLSSLVMPWVTYTDPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="MSNSELDRVIVRPVDEYNQKLVAYVHPPDWVNPQPADNYDLVVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
product = Wg2+ transport protein"
/protein.id="BAB76883.1"
/db_xref="G1:17134323"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="mercuric reductase"
/protein_id="BAB76884.1"
/db_xref="GI:17134324"
                                                                                                                                                                                                                                                                                               /product="oxidoreductase"
/protein_id="BAB76881.1"
/db_xref="GI:17134321"
                  /protein_id="BAB76880.1"
/db_xref="GI:17134320"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /protein_id="BAB76882.1"
/db_xref="GI:17134322"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(3821. .5221)
/gene="all5184"
/note="ORF_ID:all5184"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(5361. .6890)
/gene="al15185"
complement(5361. .6890)
/gene="al15185"
                                                                                                                                                                                                                        /note="ORF_ID:alr5182"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="ORF_ID:all5185"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="ORF_ID:asr5183
unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LGVLIYFNLARVILRL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3552. .3809
/gene="asr5183"
3552. .3809
/transl_table=11
                                                                                                                      2453. .3310
/gene="alr5182"
2453. .3310
/gene="alr5182"
                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3552. .3809
/gene="asr5183"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PNGGEVVNG'
                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                  Nostoc sp. PCC 7120 DNA, complete genome, section 19/19.
AP003599 BA000019
AP003599.1 GI:17134317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
/product="O-methyltransferase"
/protein_lad=Bab76878.1"
/db_xref="G1:131318"
/translation="MTTRTLGITPNLYDYLLSVSLREPEILAQLRQETALQPMGRMQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APEGGGFMALLVQLIGAKKTLEVGYFTGYSSLIVALALPAEGKLVACDINEEFFATAO
RYWQKAGYDHKIDLYLAPALETLDKILVAGEAETFDFAFIDADKSNYDNYERSLQLI
RSGGVIAIDNYLWSGKVADPEIQDNRTQKIRAFNHKILQDQRITLSLIPIGDGLTLVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NGSNFFRPLIQICNIKPRLLSFTNLVEVHVLRAIRKHHQIDLGKVRDALDFIDEOFQI
SHPLARERFLTDGVDLFIERYGSLINASKSVKTELKDAFNAHLERIEPDDTGLAIKLY
PFTRSHEEDNPRFVVVDPRIAFGRLVIVGTGISTRVLAERYQAGESIDELAYDYDCDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation="MTELYGATDPRDIPSYSISDAARYLRIPAGTIRSWTVGRHYPIS
                                                                                                                                                                                                                                                                                                               Kaneko,T., Nakamura,Y., Wolk,C.P., Kuritz,T., Sasamoto,S.,
Watanabe,A., Iriguchi,M., Ishikawa,A., Kawashima,K., Kimura,T.,
Kishida,Y., Kohara,M., Matsumoto,M., Matsuno,A., Muraki,A.,
Nakazaki,N., Shimpo,S., Sugimoto,M., Takazawa,M., Yamada,M.,
Yasuda,M. and Tabata,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
Submitted (02-MAY-2001) Takakazu Kaneko, Kazusa DNA Research
Institute, The First Laboratory for Plant Gene Research; Yana
1532-3, Kisarazu, Chiba 292-0812, Japan
(E-mail:Kaneko@kazusa.or.jp,
URL:http://www.kazusa.or.jp,
Tel:81-489-52-3935(ex.238), Fax:81-438-52-3934)
                                                                                                                                                                                                                                                                                                                                                                                                                                              Complete genomic sequence of the filamentous nitrogen-fixing cyanobacterium Anabaena sp. strain PCC 7120 DNA Res. 8 (5), 205-213 (2001)
                                                                                                                                                                                                                                                                       Bacteria; Cyanobacteria; Nostocales; Nostocaceae; Nostoc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1...23721
/organism="Nostoc sp. PCC 7120"
/db_xref="taxon:103690"
/note="synonym:Anabaena sp. PCC7120"
/gene="all5179"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="BAB76879.1"
/db_xref="GI:17134319"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="ORF_ID:all5179"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="ORF_ID:alr5180
unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="ORF_ID:alr5181
unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(72. .734)
/gene="all5179"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        867. .1568
/gene="alr5180"
867. .1568
/gene="alr5180"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LMIEEAIRCELPTAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="alr5181"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="alr5181"
                                                                                                                                                                                                                Nostoc sp. PCC 7120 DNA.
Nostoc sp. PCC 7120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 237221)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kaneko, T.
                                    RESULT 25
AP003599/c
LOCUS
                                                                                                            DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
```

514

```
74410 AATATCAGGGCCTGCTGTATTATAAGTTGTAATTACAGGAATTCCACAAGACATGGCTTC 74351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="AGR_L_2541p"
/protein_id="AAK89838.1"
/db_xref="GI:159774"
/translation="MTSALFVSHTGEKGGAELFLADLVKAGPHSWRACFLSGGATAED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LAEAGRPPVMLSAGEKMLSIRRNSSFCALARGAADVMAVAWQLSREAKHEDVICANSO
KALFYCALAAKLSRRPLVWILHDIYTDTAFSATNRRASLAFARIFARLYAVNSEETGR
STEAGGEADKYRIVYNGFDPAKAKLHDAGWAARLRRELGIGFOPLVGLFGRLSEWKG
OHVFLDAAMEGVQAYGALFGQEAYEARIREGASKLGLDGRVRFLGFRSDVPEL
MASMDVVAHTSIVAEPPRYVVAGAMGGRPVYATRGGGYTEIIRDGFGLLVPPGDAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="G1:15159775"
/translation="MPAGGRARMRILVNMPSQYGGRASGVARVTFSLLERLLEQTGDD
                                                                                                                                                                                                                                                                                                                  BCT 18-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YILRSPWTREQLPESLRDSRLELMETPRPRIMYFDVLRQAAMLPVLCRRHGIDVLFNV
DPFGSPLGGKRRLTIVHDLYFKTIPEQIGWRATLITDFIFRLAMAGSNRVVCVSEATR
KDLARFYPAAATKSLTIHSDSTLSVDPDPVDTASPIAGRYILAVGNATSNKNFALLGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This control of the chromosome and 200 bp missing from the left end of the chromosome and 200 bp missing from the right end.

Location/Qualifiers

1. 10197

/ corganism="Agrobacterium tumefaciens str. C58 (Cereon)"
/ strain="C58"
                                                                                                                                                                                                                                                                                                        10197 bp DNA ilnear Loreston 131 ens str. C58 linear chromosome, section 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - Synechocystis sp. (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Agrobacterium tumefaciens str. CS8 (Cereon)
Bacteria; Proteobacteria; alpha subdivision; Rhizoblaceae group;
Rhizoblaceae; Rhizobium.
1 (bases 1 to 10197)
Hinkle,G., Slater,S.C. and Goodner,B.
(Complete Genome Sequence of Agrobacterium tumefaciens CS8
(Rhizobium radiobacter CS8), the Causative Agent of Crown Gall
                                               455 AGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /19. .1367
/gene="AGR_L_2541"
219. .1367
/gene="AGR_L_2541"
/note="(Y17900) putative hexose transferase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Agrobacterium tumefaciens str. C58 (Cereon).
                                                                                                                                                                    74290 GTAATACTGGTTCAGAAGTAAATGGGGAACTGAC 74257
                                                                                                                                        515 GTAGACCGGTAACGCTGGGAAAAGGGCACCTGCC 548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1396. .2514
/gene="AGR_L_2543"
/note="mannosyltransferase B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="AGR_L_2543p"
/protein_id="AAK89839.1"
                                                                                                                                                                                                                                                                                                                                 Agrobacterium tumefaciens str. Coof 187 of the complete sequence. AE008327 AE007870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="AGR_L_2543"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                         AE008327.1 GI:15159773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .2514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6803)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished
                                                                                                                                                                                                                                                                                                             AE008327
                                                                                                                                                                                                                                                             RESULT 26
AE008327/c
                                                                                                                                                                                                                                                                                                             LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                               ò
                                                                                            ద
                                                                                                                                   δ
                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="two-component sensor histidine kinase"
/protein_id="BAB76888.1"
/protein_id="BAB76888.1"
/d_xref="c01:17134328"
/d_xref="c01:17134328"
/translation="MGQQAKERSGVILFHPDTQKSVKNQONTIAGTFLKHRRGFFWS
TRRILSWYGIILFFFLVFTPTTRQALYARVNQFWEEAIEKIEIFEQLLGTSNIPK
HQLDEESIEAIDKLKQTDNRLLKPPTTKQQLREFFDAFLGNQLPEDDTFLIALMDEKF
YKSSPRARPKEMDRAKLIRDWAKLTQPRQEEVYIPNSQVDSIYYLARPVEIGCEIMG
VIVIAHTTAGERGYLETLAVIVQVSTFVLIFALVLAWLASGKILAPLRLITGTARKI
SETDINGRITTDGAGELAGTTFRNAMDRLONAFISGRRETPITIIRG
SETDINGRITTDGAGELAGTTFRNAMDRLONAFISGRRETPITIIRG
HLELMGNDFKEIGETLIVIDIELERNNFVNDLMLLAKAERPDFLLLETFDVCTFTEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74530 TCGGGCGGCTCTTCCCATGTCTGCTAATTCTTTGGGATGTGAATAACACCATTGCAGTTT 74471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   74411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="two-component response regulator"
/protein_id="shab'689".1"
/db_xref="GI:131437"
/db_xref="GI:131437"
/translation="MNRILIAEDEPRIAAFIEKGLRSGGFTTAVATDAYSATNWALSS
SEDMILLOGGLPGKDGLDVLEELRSGGENIPVILITARDDIODRYAFERGADDYLTK
PFRREELLYRYKARLASGGSGSAMEETVIKSGNIVLLDRSRYKTGGDTIELPAREFT
LAETFRHPGQVLSRRQLLDRVWGYDYDPGSNIVDVYVGYLRKKLGNDLIETVRGMGY
                                                                                                                                                                                   /db_xref="GI:17134325"
/translation="MIPKEQTRFNRKHRLLLIGLTIAILIIVARQFNIQALLQTLILW
                                                                                                                                                                                                                                  VQSLGFFGPIAYMIIYNLATLLFIPGSILTLKSGCLFGVFWGSVTVLIAATVGAILAF
EIGRYLSRUWVRQIDKYPRFKMIDQSVAKEGWKIVLLTRLSPVFPFNILNYAFGYTC
ISLKDYILGSLGII FGTIMYVYIGSLAGDIALAGTNHQPVTPFTQIMQWIMQGLGLMA
TYGVTVYIIKIAQKALSQKVVTEGIIKSQDAE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MLTTTDKIKHPFLGVNHEEKVFWEQTLLLQLSLSLEIPKEVASD
ESHSHS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   275 TCTGGCGCTGCCTCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGC 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 335 GCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             395 GACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1; Length 237221;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 54.8; DB 1; Length 23
Pred. No. 2.5e-05;
0; Mismatches 137; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _
=
=
-
-
                                                                                                                                      /transl_table=11
/protein_id="BAB76885.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'trans1_table=11
'protein_id="BAB76886.1"
'db_xref="GI:17134326"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'note="ORF_ID:alr5188"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'note="ORF_ID:alr5189"
                                                                /note="ORF_ID:alr5186
Nypothetical protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                          /note="ORF_ID:asr5187
unknown protein"
                                                                                                                                                                                                                                                                                                               /ooy. .8011
/gene="asr5187"
7859. .8011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7989. .8657
/gene="alr5188"
7989. .8657
/gene="alr5188"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                7859. .8011
/gene="asr5187"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3884. .10497
/gene="alr5189"
                                            'gene="alr5186"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             al Similarity 50.0
137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                   CDS
```

g ð

ò g

gene CDS

```
/translation="MNFGSARAGPIYYQIYLYFYRLTWMKNFTKAPATGAQRLDVLQV
MRAVAAVMIYALHADVNWEFTLFPLALRLGGGVDLFFVICGFVIVYASRPYFAAAGG
RSAFLLRFFRIVPLYWFTRAWAAVPTIIGAKAFPPEWSNLVYLVISTVAIA
HAFHVFVFTFAMMLRDRLITSAVS"
1 2826 c 3216 g 2075 t
                                                                                                  DVLLRDEKTYLAFLPTVVKQRVPHSSELLTSAQMHKLLAEASSAFDYIIVDLPPLGPV
VDARAMAGRIDGFIFVTEWGKTARRAVRNTVENEVHIRKKCLGVILNKVDTEKLKLYR
AYGSSEYYHSRYTRYYHD"
complement(8453. 9445)
/gene="AGK_L_2556"
complement(8453. 9445)
                              NKPMILVLEWVWGAAAGGGIAIFREFRDRFFRTGDQVRDVLGLEFLGNTPLIPNQPTT
EAQENGHPGLIRPTSVARYAVDHPLSSFAETIRSTRLAIDLGIPAKTGARIVGVVSSL
PSEGKSTISINLAQLLAGGGARVLLLDADIRNPGATRAMARHAAEGLLEVLLEGRSVQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCGTTTCTCCGTCACGAATGATTTCAGTAACCCCGCCGCCACGCGTGGCGACGGCG 1133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1072 TGGGCAACCACATCCATCGACGCCATTAGTTCCGGCACATCCGAACGGAAACCAAGGAAG 1013
       ASETQVQMRELQREAETYKNMYQTFLQRYQEAMQQQSFPVTEARVISKAMPPYMPSKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1132 CGCCCGCACATCATCGCCTCGACAACCACCGGCCGAAGGGTTCGGCAACGATCGAGGTA 1073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 255 AACCGGTACTCAATATCTTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGG 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATAAAAAATCGCGCAGTGCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTC 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  435 ACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTT---CATTTTCCGAAGGC 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1012 CGGACGGGCCATCCAGGCGCAGGCGACGCCTGTTCGCGAATGCGCCCTCGTAGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 552 AACACATCTCCGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                э
Э
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.4%; Score 52.2; DB 1; Length 10197;
48.2%; Pred. No. 8.9e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches 188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(9561, 10130)
/gene="AGR_L_2557"
/note="hypothetical protein"
                                                                                                                                                                                                                                                                              /note="hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="AGR_L_2557p"
/protein_id="AAK89845.1"
/db_xref="GI:15159781"
                                                                                                                                                                                                                      /gene="AGR_L_2556"
/note="hvm=".
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 178; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCACGCCCG 620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 | | TCCTGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /traislation-"MPWVPANIIIRATRDITWTRRDGVMRLRKVLAVVPVLVISVFVL
STALEAGGRRFSDIVAMKTADDNNGLAPALLAATVPKLSSVYTEKICRSDIVKAG
IRLILADLDANGADPASASGMARVDFASTFIRHSLFCLPANGDVWLRLAMVRSLRNAS
PMEVAVLAMPSGLYGPADANIIRGREVMWQRFQRDALPQAVAARDADTAVVCGREGEI
LRWTLAAVCPRPPESGTKRPATLP"
                                                                                                                                                                                                                                                                                                                                                                              LVRRLARVIDELQPDVVNTHSLSELTPLIWPMIRKRGIPLVHSLHDFTSMCTNGSLFH
DGHTCDGSSRKCRAESTLHRRCQCSVDAVAGVGRDIVERHYRAGFFTHVPESRRTVIW
RAISPPDARPCTARAPGSHVAPLVFGYLGRIEAARGADLILEALRFLPSQGWRLWA
RRADGIEAYQGKTAGLPVEFPGYVEANNFFAGIDCLIVPPLWPEAFGRTVAEAILRG
VPVICANLAGYAEQIGERGERLEPPGNAAFLARMAEAMRNPAMLTFTPETTRRIRG
GVAPEVVVAAYEKLYSDVRSSTQP*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="MLQRHDPLTMSDYDKSGLTAEFIDIDAALAIIRRQWRVVLAAIA
VAGAIGLAFAATAVPIYSATATLLIDRNNSQIVEQLSTIGGVVEDEASILSQVEVLQS
ETIGLAVVDSLKLTENQEFRATRASLLSSIFGTIRSLVNVSQWFSPTKKEAVIDDGTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KRSLSDRLLNDLSVKRĪGRTYALELTYNSTSPVLAAQIVNAVASAYLLDKLNSKYEAT
KASDNULSDRTAELRORALDTDLAVOKRABEINTITGNNGLLSDQOLAESUSALTLA
QSETAKARARVQRAENALDTDLAVOVDAVYTDILDSSVABATIKKYLESSKLETETTRRLG
SSHIQAVRLRNEMQEYRRLMFQBISRIAQSYKSDLEVSBAKSLAESVAKATDISNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MSLNEARSEPVFSSQPGSMAFQNYARSVAIVSFWAIFLLALLING
GADDIESRIVUVTAAITILLIVPAILMEEPPRAGASKVLLAAGFLLGALLIVQMLLQTSSM
PAMARPNPAMSTAAMITLIAPAILMEEPPRAGASALPPEGAFWTGLU, PRYDDER
AAQTLRWFAIAGGWLALFSIVQFALFPDALGFIQKRFYLGSLTGLFVNRNTAATFFGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ILLTLATLLHKSLLAPDWAWVKALVANRLTVPADQKKLIRKSVFIGVLAGFSFTALML
TGSRAGIASSLAALIFLILLTVFNSAPKTGRNGASSRRKQRGSRRRAALVIAVAIALF
ALFANRVAIRMETRLEDDMRFCYMPGIARAITDNWPLGSGLSSFAEIYAPYHAARCGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DAVVTHAHNVYAEGLLIJGAAPPTYVAFFVLVQLTIFIRGTRKRRNYRYASHLGLAAL
LLLLLHSILDDFSLQ1POFAMAYAVFLAPVITLCLNPPGVFRDARKRQRQSSAVVISE
complement (5401 . 6130)
/gene="AGR_L_2549g1"
/gene="AGR_L_2549g1"
/gene="AGR_L_2549g1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(6072. .8348)
/gene="AGR_L_2554"
/note="(AF067140) exopolysaccharide polymerization protein
afamigkkwpdlhivhvgrdeaeetagmlydpdlkdrlirlsgiddrolaelyrhaac
LCVPSTYEGFCLPVLEAQQLGCPVVCSNRSATPETAGEGALTFDPTDAQSLVAALERL
LENPELAGKLRQAGYENRKLYSWQRAAESYARLFQTEA"
                                                                                                                                                                                                                                                                            /product="AGR_L_2546p"
protein_id="AAKB9B40.1"
/db_xref="GI:159776"
/translation="MPEQRDGFAIHRLGHTTPFFIGDWRQQPEWKRKYYKIAVQLDPR
                                                                                                                                                                       //orce="178 blosynthesis RfbU related protein --
Methanobacterium thermoautotrophicum (strain Delta H)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(3800..5323)
/gene="AGR_L_2548"
/note="hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
/product="AGR_L_2549glp"
/protein_id="AAK89842.1"
/db_xref="GI:15159778"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
/product="AGR_L_2554p"
/protein_id="AAK89843.1"
/db_xref="GI:15159779"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="AGR_L_2548p"
/protein_id="AAK89841.1"
/db_xref="G1:15159777"
                                                                        /gene="AGR_L_2569, 3645)
/gene="AGR_L_2546"
complement(2569, 3645)
                                                                                                                           /gene="AGR_L_2546"
/note="Ting"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(6072..8348)
/gene="AGR_L_2554"
complement(6072..8348)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (3800. 5323)
/gene="AGR_L_2548"
complement (3800. 5323)
                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
```

gene

gene

gene

434

ORGANISM

REFERENCE AUTHORS

ACCESSION

VERSION KEYWORDS

```
gene
                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                   Agrobacterium tumefaciens str. C58 linear chromosome, section 55 of AB009285 AB008689
                                                                                                                                                                                                                                                                                                                                                                                                      Mood, D. W., Setublid. C., Kaul, R., Monks, D., Chen, L., Wood, G. E., Chen, Y., Setublid. J. C., Katajima, J. P., Okura, V. R., Almeida Jr., N. F., Zhon, Y., Boo, L., Kitajima, J. P., Okura, V. K., Almeida Jr., N. F., Zhon, Y., Bores, C., Clandenning, J., Deatherage, G., Gillet, W., Grant, C., Guenthner, D., Kutyavin, T., Levy, R., Li, M., McClelland, E., Palmieri, A., Raymond, C., Rouse, G., Saenphimmachlak, C., Wu, Z., Gordon, D., Elsen, J. A., Paulsen, I., Karp, P., Romero, P., Zhang, S., Yoo, H., Tao, Y., Biddle, P., Jung, M., Krespan, W., Perry, M., Gordon, Ramm, B., Liao, L., Kim, S., Hendrick, C. Zhao, Z., Dolan, M., Tingey, S. V., Tomb, J., Gordon, M. P., Olson, M. V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chen Y., Woo, L., Kitajima, J.P., Okura, V.K., Almeida Jr., N.F., Zhou, Y., Bovee Sr., D., Chapman, P., Clendenning, J., Deatherage, G., Gillet, W., Grant, C., Guenthner, D., Kutyavin, T., Levy, R., Li, M., McClelland, E., Palmieri, A., Raymond, C., Rouse, G., Saenphimmachak, C., Wu, Z., Gordon, D., Elsen, J.A., Paulsen, I., Rarp, P., Romero, P., Zhang, S., Yoo, H., Tao, Y., Biddle, P., Jung, M., Krespan, W., Perry, M., Gordon-Kamm, B., Liao, L., Kim, S., Hendrick, C., Zhao, Z., Dolan, M., Tingey, S. V., Tomb, J., Gordon, M.P., Olson, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation-"MTKIYFSKSTGTGGISSDFFRGAVKVVRCCEKNLSRVTVFNSFK
CRRREAIGFIIVDNAILIDNIYFISKTWILERLQTPETSSTF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="conserved hypothetical protein"
/protein_id="AaL44365.1"
/db_xref="G1:17741960"
/translation="WTPKDKRNSPVFQRLRRIVASNIRLIICYDNLNPYVSTPLDRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (27-SEP-2001) Department of Microbiology, University of Washington, 1959 NE Pacific Ave, Box 357242, Seattle, WA 98195-7242, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="Atu3553"
/note="identified by sequence similarity; putative; ORF
located using Blastx/Gilmmer"
                                                                                                                                                                                                                                                     Agrobacterium tumefaciens str. C58 (U. Washington).
Agrobacterium tumefaciens str. C58 (U. Washington)
Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae group;
Rhizobiaceae; Rhizobium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wood, D.W., Setubal, J.C., Kaul, R., Monks, D., Chen, L., Wood, G.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Agrobacterium tumefaciens str. C58 (U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The genome of the natural genetic engineer Agrobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORF located using Glimmer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="hypothetical protein"
/protein_id="AAL44364.1"
/db_xref="GI:17741959"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tumefaciens C58
Science 294 (5550), 2317-2323 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref-"taxon:180835"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="putative;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="Atu3553"
727. .1785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="Atu3552"
100. .360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100. .360
/gene="Atu3552"
                                                                                                                                                                                          AE009285.1 GI:17741958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /strain="C58"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 12006)
                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 12006)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Washington)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .12006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and Nester, E.W.
RESULT 27
AE009285
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
```

TITLE

FEATURES

gene

CDS

gene

CDS

MEDLINE PUBMED REFERENCE AUTHORS

JOURNAL

TITLE

/product-"hypothetical protein"
/product-"hypothetical protein"
/protein_id-"aal44367.1"
/protein_id-"aal44367.1"
/protein_id-"aal44367.1"
/protein_id-"aal44367.1"
/protein_id-"aal44367.1"
/translation-"hypothese
/translation-"hypothese
/property verange of the protein of the SYVLTHRALALDLKDACDYGNIHPYAGMEHPETTGPGALSKSIAASHIAAGKPVLAT REWTHISLOYTKTHPRYTEGIKARYMPMLIMSETSGIRRSYTYELVSSRADAFNPE SSFGLIKHDLSRTPAYEAVKELSKCKANTOTTSVEREVAFLDADAQRISMPITRODG ALLYPWILAVSGWOWPARIENPPAERVAAFSVAGGHSRVVAHRFLDDGSSVSQOTIAPE /translation-"mRavaavmIvaLHaDvnwEFTLFPLRALRLGGGVDLFFVLCGFV IVYASRPYFAAAGGRSAFLLRRFLRIVPLYWFVLTVRLAMAAVPTIIGAKAFPPEWSN LVYLVIVISTVAIAHAFHVFVETPANLMLRDRLITSPRKVAVS" RRASDWLSDRIAELRQRALDTDLAVQKFRAEHNLITTGNNGLLSDQQLAESNSALILA QSETAKARARVQRIEHILATDDVDAVYTDILDSSVANDLRKKYLESSKLETEITRRLG SSHIQAVRLRNEMQEYRRLMFQEISRIAQSYKSDLEVSEAKEKSLAESVAKATDISNS /translation-"MICRHDPLTMSDYDKSGLTAEFIDIDAALAIIRQWRVVIAAIA VAGAIGLAFAATAVPIYSATATLLIDRNNSQIVEOLSTIGGVVEDEASILSQVEVIOS ETIGLAVVDSLKLTENQEFRATRASLLSSIFGTIRSLVNVSQWFSPTKKEAVIDDGTL DVILKDEKTYLAFLPTVVKQRVPHSSELLTSAOMHKLLAEASSAFDY I IVDLPPLGPV VDARAMAGRIDGFIFVTEWGKTARRAVRNTVENEVH IRKKCLGVILNKVDTEKLKLYR ASETQVQMRELQREAETYKNNYQTFLQRYQEANQQQSFPVTEARVISKAMPPYMPSKP NKPMILVLFWVMGAAAGGGIAIFREFRDRFFRTGDQVRDVLGLEFLGNTPLIPNQPTT adfyawcdggidifegsnepnltkdpqnaprisakhqaalynavhsnpqlsavpvaap KRSLSDRLLNDLSVKRIGRTYALELTYNSTSPVLAAQIVNAVASAYLLDKLNSKYEAT EAQENGHPGLTRPTSVARYAVDHPLSSFAETLRSTRLAIDLGIPAKTGARIVGVVSSL PSEGKSTISINLAQLLAGQGARVLLLDADIRNPGATRAMARHAAEGLLEVLLEGRSVQ ORF /note="identified by sequence similarity; putative; ORF located using Blastx/Glimmer" /product="exopolysaccharide polymerization/transport 3642. .5918 /gene="Atu3556" /note="identified by sequence similarity; putative; located using_Blastx/Glimmer" /note="putative; ORF located using Glimmer" /codon_start=1 /product-"conserved hypothetical protein" /protein_id-"AAL44366.1" /db_xref-"GI:17741961" /product="conserved hypothetical protein" /protein_id="AAL44369.1" /db_xref="GI:17741964" /protein_id="AAL44368.1" /db_xref="GI:17741963" GGQYRLSVSDQLTVLEVF **AYGSSEYYHSRYTRYYHD** /transl_table=11 /gene="Atu3556" 3642. .5918 /transl_table=11 /transl_table=11 1992. .2429 /gene="Atu3554" 1992. .2429 /gene="Atu3554" /gene="Atu3555" /gene="Atu3555" /gene="Atu3557" /qene="Atu3557" /codon_start=1 /codon_start=1 5918 protein"

551

```
10858 CGCCCGCACATCATCGCCTCGACAACCACCGGCCGAAGGGTTCGGCAACGATCGAGTA 10917
                                                                                                                                                                                                             .0918 resecancearcearcearcearsecarractressearcesarcesarceanceanceans 10977
                                                                                                                                                                                                                                                                                                                                                                                                                                 SWU52844 20693 bp DNA linear BCT 26-OCT-2001
Serratia marcescens strain N28b waa gene cluster, partial sequence.
U52844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Regue, W., Coderch, N., Pique, N., Abitiu, N., Merino, S., Izquierdo, L., Urgell, C., Tomas, J.M. and Regue, M. Urgell, C., Tomas, J.M. and Regue, M. Involved in core ilpopolysaccharide biosynthesis of Serratia marcescens N28b (sertype 04)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
Submitted (27-MAR-1996) Microbiologia i Parasitologia Sanitaries,
Facultat de Farmacia, Universitat de Barcelona, Av. Joan XXIII s/n,
Barcelona 08028, Spain
4 (bases 1 to 20693)
435 ACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTT---CATTTTCCGAAGGC 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (30-APR-1999) Micoribologia y Parasitologia Sanitarias,
Universidad de Barcelona, Av. Joan XXIII s/n, Barcelona 08028,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (26-OCT-2001) Micoribologia y Parasitologia Sanitarias,
Universidad de Barcelona, Av. Joan XXIII s/n, Barcelona 08028,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pique, N., Coderch, N., Abitiu, N., Aguilar, A., Merino, S., Tomas, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Serratia marcescens
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                           492 ATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATT
                                                                                                                                                                                         552 AACACATCTCGGCTCATTCCCAGGTGTTCTGTCTGCACGCAGACGTGCTTCGTATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Guasch, J.F., Fique, N., Climent, N., Ferrer, S., Merino, S., Rubires, X., Tomas, J.M. and Reque, M. cloning and characterization of two Serratia marcescens genes involved in core liopolysaccharide biosynthesis
J. Bacteriol. 178 (19), 5741-5747 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  version replaced gi:4753134.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Serratia marcescens"
/strain="N28b"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Regue, M., Pigue, N. and Abitiu, N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence update by submitter
On Oct 26, 2001 this sequence
Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:615"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence update by submitter 5 (bases 1 to 20693)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 12629 to 15061)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 12629 to 15061)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        U52844.3 GI:16445330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 20693)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="gmhD"
/note="rfaD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Serratia marcescens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                  11038 TCCTGTCCG 11046
                                                                                                                                                                                                                                                                                         620
                                                                                                                                                                                                                                                                                         TCACGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and Regue, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Regue, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8824620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Spain
                                                                                                                                                                                                                                                                                         612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                               SMU52844/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                        셤
                                            g
                                                                                                ŏ
                                                                                                                                          g
                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAATKSLTIISDSTLSVDPDPVDTASPIAGRYILAVGNATSNRNFALLGKAFAMIGKK WPDLHIVHVGRDEAEEIAGMLVDPDLKDRLIRLSGIDDROLAELYRHAACLCVPSTYE GECLPVLEAGOGLGCPVVCSNRSATPEIAGEGALFFDPTDAGSLVAALERLENDEIAG KLRQAGYERRKLYSWOKAALESYAERC (10623 . .11771)
                                                                                                                                                                                                                                                                                                                                                                                                         /product-"glycosyltransferase"
/protein_id-"AhL44370.1"
/db_xref="G1:17741965"
/translation-"MRILQITSLFSPDRVGGAEIFVEDLARGLADKGHTVAVAAISRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QOMPEQROGFA I HRIGHTTPFFIGDKRQQPEKKYYKI IAVQLDPRIJVRRILARYIDEL
QPDVVNTHSLSELTPLIWPMIRKRGIPLVHSLHDFTSMCTNGSLFHDGHICDGSSKKC
RAFSYLHRRCCCSVDAVAGYGRDIVERHYRAGFFTHVPESRRYVIWMI ISPPDAPRYC
TARAPGAPVAPLYFGYLGFI TAAKGADLLIFALRFLPSGGWRLVWAGRAPDGIEAYQO
KTAGLPYEFPGYVEANNFFAGIDCLLYPPLWPEAFGRIVABALLKGVPYIGAHLAGVA
EQIGPERQERLFAPGNAAELAARWAEAARNPAMLTETPETRERIRGGVAPEVVVAAYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="mrilvnmpsqyggkasgvarvtfsllerilegygddyilkspwt
reqlpesirdsrleimetprprimyfdylkgaamlpylcrhgidylfnydpfgsplg
gkrriilyhdlyfktipeqigwratlttdfifrlmmagsnryvcyseatrkdlarfyp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ij
                           GATDIESRIVVTAAIYLLLVPAILMFGPPRÄGAGKVLLAACFLLGALIVQMLLQTSSM
PAMARPNPAMSTAAMFTQIAPAATISLTPADDMLGIMSAALPFGAFWIGLVIFNTDER
AAQTLRWFAIRGGWILALFSIVQFALFPDALGFIQKRFYLGSLTGLFVNRNTAATFFGL
ILLTLATLIHKSLLAPDMAWYRALVANRLTVPADQKKLIRKSVFIGVLAGFSFIALM
TGSRAGIASSILAALIFILLIVAMYKALVNSPRTGRRGASSRRKQRGSRRRAALVIAVIALF
ALFANRVAIRMETRLEDDMRFCYMPGIARAITDNWPLGSGLSSFAEIYAPYHAARGGV
                                                                                                                                                                   DAVVTHAHNVAEGLLILGAAFPFYVAFFVLVQLTIFIRGTRKRRNYRYASHLGLAAL
LLVLLHSILDFSLQIPGFAMAYAVFLAPVITICLNPPGVERDARKRORQSSAVVISE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    255 AACCGGTACTCAATATCTTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGG 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         //note="identified by sequence similarity; putative; ORF
located using Blastx/Glimmer"
//codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //note="identified by sequence similarity; putative; ORF
located using Blastx/Glimmer"
                                                                                                                                                                                                                                                                                                                  similarity; putative; ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                315 GATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 12006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 52.2; DB 1;
Pred. No. 9.2e-05;
0; Mismatches 188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         product="glycosyltransferase"
/protein_id="AAL44371.1"
/db_xref="G1:17741966"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="glycosyltransferase"
/protein_id="AAL44372.1"
                                                                                                                                                                                                                                                                                                                'note="identified by sequence
located using Blastx/Glimmer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(10623. .11771)
/gene="Atu3560"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KLYSDVRSSTQP"
complement(9476. .10570)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(9476. .10570)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                       transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="Atu3559"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="Atu3559"
                                                                                                                                                                                                                    8207. .9421
/gene="Atu3558"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="Atu3560"
                                                                                                                                                                                                                                                                                         'gene="Atu3558"
                                                                                                                                                                                                                                                                                                                                                                 codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 48.28
Matches 178; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                      CDS
```

g

à

g

ò 셤

ð

gene

```
//ITAGE 14 LION-*MORKWKIRVADWFLRRYTARYGRFQDKATFDCAQQLDNIVIYST
TALGDFWFNTPALRAMRERYPNAHITLVVHKKNRELVENGRYYDRVYYWDSKIKTIRP
TALGDFWFNTPPALLIHSHLPYDIISAVWAGARXIIRDNYSSGIGGEBFWIRNYIFHY
VGHFVRRKLDFILISILGERSDDFWEIPVDYORGVKSSDHFTIGFQLGASTESRCWPVS
HYARLADELVAKHPNRIVLIGAPLDGKAQQFWSLIGPQTQACYDNOIGKTGLGGLI
TLLDSFHVLVTGDTGPLHLAVALKYRTISLFVTADSRSTGPIQDPELLRIIQVSRTGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="putative heptosyltransferase III Waag"
/product="putative heptosyltransferase III Waag"
/protein_id="AAL23760.1"
/db_xref="61:16445339"
/translation="MMNDAPALTSAPSVQRILIIKLRHGDMLLVTPVISSLRQNYPQ
ARIDVLLYGEYDEMLASNPELSTLFALDROWKKQGARAHLGHELARLIRRLKAQRYDLV
VNLADQWRSAIITRLFGARIRLGFDFPRRRGFLWRHCHTQLVPVDNHAHLHTVEGNLS
ILAPLANDAMSHYTMSYDPQNWQTCEDLLQKGGVAGSYIVVQPTSRWFFKGWSEEKM
AATLTALQADGHQLVITSGPDAEKAMVERILALCPPQGVISLAGQLTLRQLAALIDH
AKLFIGYDSVPWHAMAALQTPCVALFCPSKLTFFWRPWQATGAVIWAGDFGELPDPDAI
DTGTDERKILDLIPTDAVIAAARSTLA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RSMWHLWSRVYKRTLLAGETFEDGRRYEDVIFTPFQYFKTRRIAHLDCELYFYRDNSQ
GITRNIKPKDIEDLLFAMEKMLRFVAOHPGDEPLRRLAALMLANCFSEVKSMSKAVYG
YYHYAPATLQILRRAATVCRNSDVPCKKVRQMRYARVDTFLSKLRGRKPR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /trānslation="MRAFLIAIVRRYRPDGGAERFYSRALKALEQQDLDLNVITREW
QGDARNWHHILCNPLKIGRESRERFSPAVAARALWQRERFDJVGSHERF DGCDIYRAG
DGVHRRWLLQRARLLEBWRKRWLFSNRYHRYWCAERAWYAAPELKAVICNAENIKRE
IIADFGVPADKITVIYNAIDNOKFPPADEAQRRRLREQYQIPQQAHCLIFVGSGFERK
GLAAAIRAVAATDSHLLVYGKDRAERKYRALAGASIGGCBRIHFWGVQKQTLPFYQAA
GLIAAAIRAVAATDSHLLVYGKDKAERKYRALAGASIGGCBRIHFWGVQKQTLPFYQAA
ALLLPPLYDPFPNYLLEAMSGGLDVITSTTGGGAEFTPGQNGFYTDALDVPAITEAI
RALPRQALGSSWGEAARRINTATPAHLSEQLISLYNRLLD
                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAL23758.1"
/db_xref="G1:16445337"
/translation="MKTHQPTLLSVIVPFYNNEAFVIAALDSLFTQISDEIEVVIIDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSTDASGALVSRYLAQRQHPRVAFISQANGGIAHARNVCLQHAAGRYLTFLDGDDLLIS
DDYLAILRPLLIADEYDLIDFNYQKFTEQPPKPENRATQPAAYDFSSLGLGSLQPLFA
                         AYLMTAIDLVMMQAIIMLRTRYRLVLYIAAFILSFSALVLTGTRAAMLVYPVAICLSL
LATKHLVSRKHKLALVASVPLLLVACGLVFKPQIEERIQAFETDMRLMDQPQTENSII
                                                                                                   SRLSMQTLAWRTGSQAPWGQSAEQRGEEIRAIVAQQPRLSGVWPYINVHLHNELLETY
SLKGVWGALLLLALYIGLFFSSFRPQRNALLLSVSASLFYYGLSDVIFFSTEGTVMFC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8516. 9598

4gene="waaQ"

8516. 9598

/gene="waaQ"

/gene="waaQ"

/note="complements a non polar Klebsiella pneumoniae waaQ

mutant; similar to WaaQ proteins from the
LATAFILLIALNERLCVQRLLIVVALVTGLAINGYSLYQGLRLDIPRVELNFDRATVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(6246. .7340)
/note="Orf7; LPS from a non polar orf7 mutant has reduced
levels of D-D-heptose"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                glycosyltransferase and WaaG from Salmonella enterica
serovar typhimurium, and Escherichia coli strains K-12,
R2, R3 and R4; Orf9; LPS from double non-polar orf9-orf10
mutant lacks Gala, has reduced Glc levels and contains
                                                                                                                                                                                                   5229 .6209
/note="orf6; similar to TsrB (WbcK) protein from Yersinia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9595. ,10722
/note="similar to Klebsiella pneumoniae C3 putative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product-"putative glycosyltransferase"
/protein_id-"AAD28801.1"
/db_xref="G1:4753135"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TMPLEAESPMGVIQPQRIYDELVAHVPLAR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="heptosyltransferase"
/protein_id="AAL23759.1"
/db_xref="GI:16445338"
                                                                                                                                                                         LALIAGVLSVAKPPSAQEQTA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Enterobacteriaceae"
                                                                                                                                                                                                                                                                                                                                                                                    /product="unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                enterocolitica
                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        O-antigen'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RIKTPAGIDNTPKTIACOPIRIGTARRIUSOKIGISVSLIAMOBELLRKGHDVTLEVORKVIN
PDRAAFBALAARLQUEGDRYTRIGTARRIUSIKGISVSLLAMOBELLRKGHDVTLEVAGKG
PDRAAFBALAARLQUEGDRYTRIGTARRIUSIKTHITMSTPTTEPFGLISCMESLYFG
POVITPOVUNGOPEAVKDGVCGIGLVPSVTIEGHRQLTDIEVDFPHEVYDPLTDSLVSP
KLLSHIDDADVETLVAGGETYQTLGRNAQRYPAEHFNYAQFRAEFDDTLRSFIV*
3991. . 5232
                                                                                                                                                          /protein_id="Aal23753.1"

/Lanslation="EDELIOIMAGEBEGEIEAIFHEGACSSTTEWDGKYMMDNNYQYS
KELLHYCLEREIPFLYASSAATYGGRTSDFIESREYEQPLNVYGYSKFLFDEVVRQIL
BENSQIVGYSRYKNYGDREGHKGSMASVAFHILMYGLNNGESFKLFEGSDGFKRDFVY
VGDVADVNUMFWENGVSGIFRLGTGAAESFGAVADATLAYHKKGSIEYIPFPEKLKGR
YQAFTQADLTNLRKAGYDKPFKTVAEGWTEYMAUNRDA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LARMPEVNQALAMPICHGALGLGERRRIGRALRANRYDRAYTLENSFKSALVPFFADI
PORTGWRGERRYGLIADVRYLDKAAPPLAYORYVALAYDKGRVQRADDLPQPLLMPQL
YSOBELAETTSAFNLTDSRPIVGFCGGAEGPAKRWHYYHYAALAQDLESGYQIYL
FGSAKDHEAGEQIRAALQDDARDFCLNLAGRYGLEGAVILLAACRAVYSNDSGLMHVA
AALNKPLIALYGPSSPDFTPPLSDKARVIRLISGYHKVRKGDAEGGYHQSLIDIQPQO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="movlivkTssmgdvlhtlpaltdaldaipdirfdmvveegfsqi
ptwhpavdrvipvairrwrssdtrqqrcdfkralqerrydvvidagglmksaal
ttrvakgskhqddcksareppaswfyinkheidkrqhaverrrelfarslgydkegsy
gdyalarfelsqppvdaggvivflhattrddkhwpedwwrelialtadsgikiklpwg
Aehergralkrabgfphyevleklslqdvaargargvysydtglshitaaldkni
tlrgptdpgliggsgonghslispersmatidadaargvys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAL23757.1"
/db_xref="G1:16445336"
/translation="MLKQKTPHPAFSYLIYLGCAIAFCTIPFGSATGRNLFYVSSYIA
FIAVCLYPRYYFSNVKNLLLPALMFCVGMGTILMMHFKQPGEXITIYRSYMSTGKLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="complements a Serratia enterica serovar Typhimurium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product-"heptosyltransferase II Waar"
protein_id-"AAL23754.1"
/db_xref="GI:1644533"
/translation-"MKILVVGPSWVGDMMMSQRLYRTLRARYPQAIIDVMAPAWCRPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MKKLHIINLGKMGGVERLFLQYINDTTDGSNQVLCISGDIGEEI
RRQLPAHQPVTFANRLINALPLRCPQFLRKFLLKWKIERANADVVIVWDLVPGLAAKP
KRGKLVYYDHGCSWRYPKNQKTLRFFAMLDGVISASHASKRVMELRFNLPCPNHVVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="complements a Serratia enterica serovar Typhimurium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="lipid A core:surface polymer ligase WaaL"
                                                                                        /transl_table=11
/product="ADP-L-glycero-D-manno-heptose epimerase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="similar to Escherchia coli K-12 WaaL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="putative glycosyltransferase"
/protein_id="AAL23756.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="heptosyltransferase I WaaC"
/protein_id="AAL23755.1"
/db_xref="G1:16445334"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref-"GI:16445335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VLDALTPLLVASEE"
                                                              codon_start=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1834. .2799
/gene="waac"
1834. .2799
/gene="waac"
                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="waaF"
785. .1831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="waaF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Orf4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      waac mutant"
                      'gene="gmhD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="waaL'
3991. .5212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3991. .5232 /gene="waaL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mutant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2796. .3962
```

gene

gene

CDS

g

ð

a

ö

ó

셤 ŏ 셤 à g

```
/note-"Best Blastp hit = g1|7433884|pir||E72354 probable hexosyltransferase (EC 2.4.1.-) TM0622 - Thermotoga maritima strain MSB8) g1|4981142|gb|AAD35706.1|AE001736_4 (AE001736) lipopolysaccharide biosynthesis protein, putative [Thermotoga maritima]', score 263, E-value 4.00E-69"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="MFTLIVVLILGLMIVFFEIWRWRKIKFIDFLRGFNIVYFIIFL
PRYIILEPRKUDSLPPSSMWIFNINYKDAYWSFLASVIGFCTVVGYYLGLSIF
RNIGCSINFKLMKISDSYMLLISIITLFLGFSLGKIYRRRSAPLFDLIMYSGLIRSG
IKVKGVEETSFFFLFELITFELITFSSYVLLGLSLNKFSSFKRRFLYFLGFGISGLILGLLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LILKAGRLHLINYLLVVFLTLYSTLEKRIFRILFLVLSLGVSLSIILYGKYWFGIRFG
KPIYNSLQDIFSNFFAEFSFPYLSLINILCNVPIKTSYRYFLDFPLGILRIPLGLISK
ILDINIDFPLTLSQENTLIILGFEKGGIPVDILGAGYFSANIFGVVFIMFCLGMLLAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LLLHKVPVKVHTVHNIAEKEVDKVGKLVHKIAFSFGVIPISISRLVSESLTSVYGVKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPLILNGIPVEYYQRANINREEWREKEGFQKEDFLFVNIARLAPQKNQALLIEAFAKG
BARDINSKLII UGOGERFRENEETIKHREEREYYPKIGTRIDTPDILUNASDVFYLSSD
WEGNPLSVKEAMAGERYDIAPSVGGYPELLODNITGTLYPPKNYNAFSRAMLMLIENK
DLCQKLGERAKEVAEKEFDISVWYKKYEKLYESLLQFKLKKGASLL"
                                                                                                                                                                                                                                 /product="predicted glycosyltransferases"
/protein_id="AAM23922.1"
/protein_id="AAM23922.1"
/bcrtein_id="C1:20515644"
/translation="MRDNRIOPALISSYNPYITNLGGLQIHLLLLEKGLRLNNVNVTKYYTFSSFEKAKLVFRYPFYKFMSYKDRVITRTKLIEKFKKQHFEIPQVVNAHDVI
                                                                                                                                                                                                                                                                                                                                                                  SGAFCNSKKIVLTLHGYYTREAINYGGFSKEDIPDFERFGRDLEKRAIDKAQRIITVD
SRIKEYVVSEFSFPREKVDVIFNAVDIDIFKPISELEKKQIREELGWGEEDFVVFIPR
RYVKKNGVIYAAKAANILKEKDIKFIFAGIGPLKEEILNITHKNKNYKVLEGIPHDEI
                                                                                                                                                                                                                                                                                                                                                                                                                                              VKYYRACDVVLIPSITSDGVEEATSLSMLEGMSCGKIVVCTPIGGMKEIIKHGVNGFF
VEOKSEEAIAYIIEKIKEDFYKLDSIRQEARKYIEKNHSYIVHARKFIEVYEKAIK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MNRIKVLQIIPNFGYGGAERLTVNLMKYLDKEKYEVRAISMFDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LNTELEKILENENIPVYYLGKKKGFDPRMFFRIDKIIKSFKPHIVHTHRYVLRYALPS
                                              /note="Best Blastp hit = gi|2129096|pir||F64500 probable hexosyltransferase (EC 2.4.1.-) MJ1607 - Methanococcus Jannaschii gi|1500505|gp|AAB99629.1| ('067601) LPS biosynthesis protein, putative [Methanococcus Jannaschii], score 100, E-value 3.00E-20" /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FERIFSNVSNPVLRSLKIAWILYFSTMVVLYADPAILLWDGVYLIFPTIVFLMLYLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      forte-refam match to entry Glycos_transf_1, Glycosyl
transferases group 1, score 123.5, E-value 3.90E-33"
1350. -2742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="pfam match to entry Glycos_transf_1, Glycosyl
transferases group 1, score 199.9, E-value 4.00E-56"
3886. .4839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transl_table=11
/product="predicted glycosyltransferases"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="AAM23924.1"
/db_xref="G1:20515646"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="AAM23923.1"
/db_xref="GI:20515645"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="TTE0658"
2751. 2755
/gene="RfaG5"
2762. 3904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="TTE0656"
/gene="TTE0656"
/350. .135
                                                                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1350. .1354
/gene="TTE0656"
1369. .2742
/gene="TTE0656"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3296. .3802
/gene="RfaG5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2762. .3904
/gene="RfaG5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2751. .3904
/gene="RfaG5"
                           /gene="RfaG4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NFKKYSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                               11667 CTTTTTCCAGAATTTCCGCAGGCCGCCCGGACAGCGGGTGCTGACCACCGGCGTGCCGC 11608
                                                                                                                                                                                                                                                                                       11607 ACAACAGCGATTCTACCAGCACATTGCCAAACCCTTCGCTATCGGAGCTGAGCACCAACA 11548
                                                                                                                                                                                                                                                                                                                                                                                                11488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11487 CTGCGATACCCAAGTCTGCCGCCAGACGCTTGACCTCGGCGACGCGGCGTCATCCCCGG 11428
                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BCT 09-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (07-0cr-2001) Institute of Biophysics, Chinese Academy of Sciences, Belling 100101, China
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 (bases 1 to 8594)
Than Y. Xue,Y., Xue,Y., Xu,Y., Tal,X., Huang,L., Dong,X., Ma,Y. and Tan,H.
Direct Submission
Submitted (07-0CT-2001) Institute of Microbiology, Chinese Academy
                                                                                                                                                                                                                                                                                                                                            561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 8594)
Bool O. Than, Y. Tai, W., Xu,Z., Xuan,Z., Hu,S., Dong,W., Yang,J.,
Chen,Y., Xue,Y., Xu,Y., Lai,X., Huang,L., Dong,X., Ma,Y., Ling,L.,
Tan,H., Chen,R., Wang,J., Yu,J. and Yang,H.
A Complete Sequence of the T. tengcongensis Genome
Genome Res. 12 (5), 689-700 (2002)
                                                                                                                                 441
                                                                                                                                                                                                                                                                                                                                                                                                                                              621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 (bases 1 to 8594)
Bao,0., Xu,Z., Hu,S., Dong,W., Chen,Y., Wang,J., Yu,J. and Yang,H.
Direct Submission
Submitted (O'7-2001) Beijing Genomics Institute/Genomics and
Bioinformatics Center, Institute of Genetics and Development,
Chinese Academy of Sciences, Beijing Airport Industrial Zone B6,
Beijing 101300, China
3 (bases 1 to 8594)
Li,W., Xuan,Z., Yang,J., Ling,L. and Chen,R.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tengcongensis strain MB4T, section 61 of 244 of
                                                                                                                              382 CATTCTTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGG
                                                                                                                                                                                                                                                                                                                                         502 CACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTC
                                                                                                                                                                                                                                                                                                                                                                                          11547 GCGAGGCATGGCGGATAAACGGATAGGGATTGGCCTGGAAACCGAGGAACAGCACGCGCT
                                                                                                                                                                                                                                   442 AGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                              562 CGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCGG
                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Thermoanaerobacter tengcongensis
Bacteria; Firmicutes; Clostridia; Thermoanaerobacteriales;
Thermoanaerobacteriaceae; Thermoanaerobacter.
                                                                          ö
                     Length 20693;

    8594 Thermoanaerobacter tengcongensis"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                            Indels
                     Score 50.6; DB 1;
Pred. No. 0.00034;
0; Mismatches 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sciences, Beijing 100080, China Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Thermoanaerobacter tengcongensis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /strain="MB4T"
/db_xref="taxon:119072"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8594 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'note="TTE0655"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AE013034.1 GI:20515643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="RfaG4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="RfaG4"
                     4.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Thermoanaerobacter te
the complete genome.
AE013034 AE008691
                     Query Match 4.3
Best Local Similarity 50.2
Matches 125; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11427 TGCCGATCA 11419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    622 CGCCCACCA 630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1997336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AE013034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 29
AE013034/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
```

3780

ö 291 3720

411

471

351

```
3719 CATTCTTTGGGGGAACAAGAATTCCTGTAATATTATTCTGTATTAACTCTGGAACTCCTC 3660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3659 CTACTGACGTTGCTATCACCGGTTTTCCAGCAGCCATTGCTTCCATAACACTTAGTGGAT 3600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRI 27-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (27-FEB-2001) DOE Joint Genome Institute, 2800 Mitchell Drive, Walnut Creek, CA 94598, USA ON Feb 27, 2001 this sequence version replaced gi:5757495. Finishing Completed at Stanford Human Genome Center www-shgc.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                          232 TCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATATCTTCTCTGGCGCTGCCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens chromosome 4 clone RP11-448G15, complete sequence. AC005674
                                                                                                                                                                                                                                                                                                                                                                     3839 ITITIACCALTACACTAATATCAAACTCTTTCTCAGCAACTTCCTTAGCCTTTTCTCCTA
                                                                                                                                                                                                                                                                                                                                                                                                                    292 TCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCGGTGCGCCGGTCCATGCAGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                               3779 ACTICIGACATAAATCTITGTICTCAATTAACATCAGCATTGCTTTAGAAAAGCGTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     412 CCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 (bases I to 199450)
Stone, W.E., Schmutz, J.J., Cox, D.R. and Myers, R.M.
Direct Submission
Submitted (11-SEP-1998) Department of Genetics, Stanford Human
Genome Center, 85 California Avenue, Palo Alto, CA 94304, USA
(bases I to 199450)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            352 CATCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCGC
                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                       gi|3451511|emb|CAA07667.1|
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DOE Joint Genome Institute and Stanford Human Genome Center.
                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                  DB 1; Length 8594;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality: Phrap Quality >=40 99.9% of Sequence;
Estimated Total Number of Errors is 0.2.
                                                                                                                                                                                                                                                          Pred. No. 0.0006;
0; Mismatches 139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 472 ACGCTTCATTTCCGAAGGCATGACCACCACA 503
                                                                                                                                                               /gene="RfaG7"
/note="Best Blastp hit =
                                                                                                                                                                                                                                    Score 49.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               199450 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AC005674.11 GI:13129492
                                                                       /note="TTE0662"
7215. .7219
                          7215. .8462
/gene="RfaG7"
                                                                                                             /gene="RfaG7"
7227. .8462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 199450)
                                                                                                                                                                                                                                  4.2%;
    2.50E-150"
7215. .8463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SHGC-51391 G34042
SHGC-69010 G41975
SHGC-2021 G33945
SHGC-25155 G31610
SHGC-51591 G34129
SHGC-1311 G33196.
                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Content:
                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 133; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AC005674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 30
AC005674/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
REFERENCE
                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                            RBS
                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                        /transl_table=11
/product = conserved hypothetical protein"
/protein_id="AAM23925.1"
/protein_iid="AAM23925.1"
/db_xref="GI: 20515647"
/translation="MRYVRILSKYLRILLGKSALHVNQGIGKIYSKEGIKGYYNDLTL
/translation="MRYVRLUGEKIYFPTTVIQYGIGNYDLTLLTKQDIYFEGFWKSYN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENNMIREKARSSNFIRVIDKNGYDEILSYVKEYRDKLYILHVGVKVDVNFKKLDLKKA
NRALLIAVGAPANFVVKKGHIYLIQAIKKVIEYQNCNYYCYFFCKGLLEDELKLTVTQLN
LEDRIFFKGQLPHDELIELYRSGKIDCVILPSIVYDDGEKEGIPVSLMEAMAHKIPVI
SKIVGGIPELLEGGAGIIVEQKNSDELAKAIMKLINDEKLREELGEKGFEKIEKEFNL
SKIVEELLYLMGNN*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AEDRIYYVGDVMFDAAIFYGEKAGQOSKILETLDLKPKEYILSTIHRAYNTDIPERLK
TIFNALCKIGKDITIVMPLHPRTKAALLREGLYEKVSEKLKIIEPVGYLDMVKLEKNA
KLIITDSGGVQKEAFFYKVLCVTLREETEWVELVDLGWNYLVPPDCEKFIEESIRKVL
                                                                                                                                              score
                                                                                                                                                                                                                                                                                                                                        WVVNEQDELGGWDVFERIGSKKFYKYSAMTQGEGASLLIRAFGESGDEEFVDRAKKAI
MALLLVPEKGGTARYVDKLFLEEVVESKPVLILNGKIFAVFGLYDIFKATSGGRYKE
ALGRILDTIKDELYKYDTGVWAYYDOCGNIASPFYHKLHIALLEVLYELFNTIEFRTY
KEKWESYLSNKFKRFRAFIVKAYOKIKEPGEVVLIK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="Best Blastp hit = gi|7470136|pir||577339
pypthetical protein sll1123 - Synechocystis sp. (strain
PCC 6803) gi|1655251|dbj|BAA17442.1| (090906) hypothetical
protein [Synechocystis sp.], score 117, E-value 3.00E-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product-"predicted glycosyltransferases"
protein_id-"AAM23926.1"

/db_xref-"GI:2051548#
/translation-"MKGMKIAYITSOTPYGKGEQFILPEILEVIKKGHDVVVIPVRPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KETALGDEPREVAKFTMHIPLLSLNLILKSFLIFIKHPLRVVEIIFKILRHSGSLGKI
LKNLLIIPKGLVVSEILKKRKINHIHAHWASTPSTLAYIASELTGIPWSFTAHRWDIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'mote="Best Blastp hit = gi|3451512|emb|CAA07668.1|
AJ007747) putative UDP-N-acetylglucosamine 2-epimerase
Bordetella bronchiseptica], score 381, E-value 1.00E-105"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MKIVTIIGTRPQFIKAATVSRKIKDFNDMKEIIVHTGQHYDDNM
SDIFFKELEIPQPDYYLGIGSGSHGVQTAHMLEKIEDVLIKEKPDVVLIYGDTNSTLA
GTLAASKLQIPVAHVEAGLRSFNRKMPEEINRIVADHVSDLLFAPTKVAVNNLINEGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6228. .7175
/gene="WecB2"
/note="Pfam match to entry Epimerase_2,
UDP-N-acetylglucosamine 2-epimerase, score 512.8, E-value
                                                                                                                                  (AF330049) D-glucuronyl C5-epimerase [Mus musculus], 96.3, E-value 5.00E-19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="RfaG6"
/note="Pfam match to entry Glycos_transf_1, Glycosyl
/masferases group 1, score 154.5, E-value 1.80E-42"
6085. 7190
                                                                                                                  gi|13442978|gb|AAK26246.1|
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="UDP-N-acetylglucosamine 2-epimerase"
/protein_id="AAM23927.1"
/db_xref="G1:20515649"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAPHGLDAEPYGDGKAAEKIVKVLRKYLL"
                                                                                                               /note="Best Blastp hit =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6099. .7190
/gene="WecB2"
/note="Best Blastp hit
                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="Rfag6"
/gene="Rfag6"
/note="TTE0660"
4840. .484
       Jod6. .3890
/gene="ITE0659"
3901. APP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note-"TTE0661"
6085. .6089
                                                                  3901. .4839
/gene="TTE0659"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79ene="Rfag6"
/4852. KATE
gene="TTE0659"
                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="WecB2"
6099. .7190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4852. .6072
/gene="RfaG6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="WecB2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                          RBS
                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
```

```
AP000007 253505 bp DNA linear BCT 06-APR-2000 Pyrococcus horikoshii OT3 genomic DNA, 1485001-1738505 nt. position
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                    PAT 28-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 (sites)

Kawarabayasi, Y., Sawada, M., Horikawa, H., Haikawa, Y., Hino, Y.,
Yamamoto, S., Sekhne, M., Baba, S., Kosugi, H., Hosoyama, A., Nagai, Y.,
Sakai, M., Ogura, K., Otuka, R., Nakazawa, H., Takamiya, M., Ohfuku, Y.,
Funahashi, T., Tanaka, T., Kudoh, Y., Yamazaki, J., Kushida, N.,
Oguchi, A., Aoki, K., Nakamura, Y., Robb, T.F., Horikoshi, K.,
Masuchi, Y., Shizuya, H. and Kikuchi, H.
Complete sequence and gene organization of the genome of a
hyper-thermophilic archaebacterium, Pyrococcus horikoshii Or3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  571 ATTITIGECGGATCACAGGIACCCCCGCATGCCATCGCTTCAAGCGCCCACTAAACCAAAG 512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           631 TTCCCAAGGGGGCATAAATAACCAGTTACTTCGTCTTCAACAACTTCCGGGATGCCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                414 GICTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     474 GCTTCATTTTCCGAAGGCATGACCACCACTGGCAATCCGGTAGACCGGTAAACGCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    511 CTITCTTTTCGCTTAACAACAGCATTAAATCGCTCATAGACAACAATTCAGCAACATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       354 TCCCCCCACGGGTAACAGCGTCCCTGTCATTCTTCTGAATGACATCAGGGATCCCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1/7)
AP000007 AB009464 AB009465 AB009521 AB009522 AB009523 AB009524
AB009525 AB009526 AB009527 AB009528 AB009539 AB009530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                            Bacillus clausii
Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 783;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Archaea; Euryarchaeota; Thermococci; Thermococcales;
                                                                                                                                                                                                                                                                                                                                                                                         2 others
                                                                                      linear
                                                                                                                                                                                                                                          Berka, R. and Clausen, I.G.
Methods for monitoring multiple gene expression
Patent: WO 0229113-A 6118 11-APR-2002;
NOVOZYMES BIOLECH, INC. (US); NOVOZYMES A/S (DK)
LOCALLON/QUALIFIERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 48.6; DB 6;
Pred. No. 0.00075;
0; Mismatches 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pyrococcus horikoshii (strain:OT3) DNA Pyrococcus horikoshii
                                                                                      DNA
                                                                                                                                                                                                                                                                                                                                                    clausii"
                                                                                                                                                                                                                                                                                                                                                                                     208 t
                                                                                    783 bp Di
6118 from Patent WO0229113.
                                                                                                                                                                                                                                                                                                                                    1. .783
/organism="Bacillus cla
/db_xref="taxon:79880"
149 c 199 g 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Thermococcaceae; Pyrococcus.
                                                                                                                                       AX437703.1 GI:21662511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AP000007.1 GI:3236134
                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 4.1%;
Best Local Similarity 49.8%;
Matches 123; Conservative
                                                                                                                                                                          Bacillus clausii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           594 AGACGTG 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          391 GCAATTG 385
                                                                                                                                                                                                                                                                                                                                                                                          ď
                                                                                                      Sequence
AX437703
                                                                                      AX437703
 C 737
 737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 33
AP000007/c
                                                   RESULT 32
AX437703/c
                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                            AUTHORS
TITLE
JOURNAL
                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                        ACCESSION
                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                         KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         å
                                                                                                                                                                                                                                                                                                                                                                        112372 TCTGTTTGGAGCTTAGTGCCATGGACCTCAGTCTTTGGTGTACATCAGAATCACCTAGTC 112313
                                                                                                                                                                                                                                                                                                                 112312 CCTGTCCCAAACACACTGAATCAGAATTGGCAGCGATGAGACTCTAGTGAATGTGAAGTT 112253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PAT 28-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                530
                                                                                                                                                                                                             133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     351 ACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCG 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           411 CCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCA 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGCTTTCCTTCTCGGACAAAGCAGCTTTAAATCGCTGATGGCGTAAAGCTCTTCTACG 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    797 crercrigirreccaaggaaaagaacgicgrcrifraarccgagcrercaagarge 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCT
                                                                                                                                                                                                             74 TCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGATAAATTACTC
                                                                                                                                                                                                                                                                                                                                                        GCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATC
                                                                                                                                                                                                                                                                                  134 CGTTACCGGAAAACCGCTGAACAAATTCGGGCTGAAAAGAGGATCCGCCGTTATCTGTT
                                                                                                                                           Length 199450;
                                                                                                                                                                          ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteria; Firmicutes; Bacillales; Bacilláceae; Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 6; Length 1135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches 120; Indels
                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (DK)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Berka, R. and Clausen, I.G.
Methods for monitoring multiple gene expression
Patent: WO 0229113-A 1695 11-APR-2002;
Novozymes Biotech, Inc. (US); Novozymes A/S (DR
Location/Qualifiers

    .1135
    /organism="Bacillus licheniformis"
    /db_xref="taxon:1402"
    251 c 278 g 279 t

                                                                                                                                                                          66
                                                                                                                                       Score 49.6; DB 9;
Pred. No. 0.0012;
0; Mismatches 99;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.1%; Score 49; DB 6; 50.2%; Pred. No. 0.0006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1135 bp DNA
Sequence 1695 from Patent W00229113.
AX433280
AX433280.1 GI:21658084
                                                                                                                                                                                                                                                                                                                                                                                                                                            ų
                                                                 /clone="RP11-448G15"
a 46671 c 45223 g 52721
                                                                                                                                                                                                                                                                                                                                                                                                                          AAACCGGTACTCAATATCTTCTCTGGCG 281
                  /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacillus licheniformis
Bacillus licheniformis
                                                                                                                                       Match 4.2%;
Local Similarity 52.4%;
Hes 109; Conservative (
.199450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 121; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ಹ
                                                                                       54835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C 591
                                                                                                                                                                                                                                                                                                                                                                                                                          254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
                                                                                                                                            Query Match
     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 31
AX433280/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sonrce
                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                             Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                        õ
```

```
2StD46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    strand).
                                                                                                                                                                                                                                                                000351
                                                                                                                                                                                                                                                                                             8843436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_unit
                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                               REFERENCE
                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                             PUBMED
                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RBS
                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                118698 CAACGTCTGTAGCTATAATGGGAACTCCGGAGGCCATGGCCTCAAGGATTACTATGCCGA 118639
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Robb, T. F. is at the Center of Marine Biotechnology, University of Maryland, Baltimore, MD, USA.
Horikoshi, K. is at the Japan Marine Science and Technology Center, Yokosuka, Kanagawa 237-0061, Japan.
Masuchi, Y. is at the University of Tokyo, Meguro, Tokyo 153-0041,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BCT 12-MAY-2002
                                                                                                                       Submitted (11-70N-1998) Yutaka Kawarabayasi, National Institute of Technology and Evaluation, Biotechnology Center; 2Chome 49-10 Nishihara. Shibuya ku, Tokyo 151-0066, Japan (E-mail:genomeOT3@iite.go.jp, Tel:+81-3-3481-8951, Fax:+81-3-3481-8424)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Japan.
Shlzuya, H. is at the California Institute of Technology, Pasadena,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The other authors are at the National Institute of Technology and Evaluation, 2-49-10 Nishihara, Shibuya, Tokyo 151-0066, Japan. All the sequence with length 100 codons or more between ATG or GTG and stop codon are defined as CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homology analysis is performed by Smith-Waterman algorithm against GenBank and GenPept release 103; EMBL release 52.0; Swissprot release 34.0; PIR-Protein release 54.0; and OML release 29.5. E-mail address for comments and questions: genomeOrJ@aite.go.jp Restriction map, ORP corganization, sequence alignment and more information are available at W.W.W. site of Biotechnology Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 412 CCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCAA 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               352 CATCCCCCACGGGTAACAGCGTCCCTGTCATTTTTTTTGAATGACATCAGGGATCCCGC 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SC2D46 35576 bp DNA linear BCT 12-MAY-2 Streptomyces coelicolor cosmid 2D46.
AL391406 AL645882
AL391406.1 GI:9857143
AbaA-like; AraC-family; ATP/GTP-binding membrane; bldA;
DNA-binding; GRTR-family; ATP/GTP-binding membrane; bytacise; integral; integrals; MarR-family; NLE/P60-family secreted; pgm; phosphoglycerate mutase; TetR-family; transferase; transport.
                                                                                                                                                                                                                                                                                                                                                        AB009464-AB009465, AB009521-AB009531: submitted (10-DEC-1997)
Rawarabayasi, Y. is officially affiliated with the National
Institute of Bloscience and Human-Technology, Tsukuba, Ibaraki
305-0046, Japan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             On or before Mar 17, 1999 this sequence version replaced $\; (3:131896, 91:3131920, 91:3131974, 91:3131984, 91:3132118, 91:3132133, 91:3133142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGCTTCATTTTC---CGAAGGCATGACCACCACACTGGCAATCCGGTAGACC 521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.1%; Score 48.2; DB 1; Length 253505; 59.0%; Pred. No. 0.0036; 1ve 0; Mismatches 68; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            position"
t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'organism="Pyrococcus horikoshii"
                                                      2 (bases 1 to 253505)
Tanaka,T., Kawarabayasi,Y. and Kikuchi,H.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /map="1485001-1738505 nt. 56827 c 47619 g 74625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="taxon:53953"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ://www.blo.nite.go.jp/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
1. .253505
DNA Res. 5 (2), 55-76 (1998)
98344137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              strain-"OT3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         74434 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local
Matches 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                             AUTHORS
TITLE
JOURNAL
                               MEDLINE
REFERENCE
       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SC2D46/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

```
The more significant matches with motifs in the PROSITE database are also included but some of these may be fortuitous. The length in codons is given for each CDS.

Usually the highest scoring match found by fasta o is given for CDS which show significant similarity to other CDS in the database. The position of possible ribosome binding site sequences are given where these have been used to deduce the initiation codon. Gene prediction is based on positional base preference in codons using a specially developed Hidden Markow Model (Krogh et al., Nucleic Acids Research, 22(22):4768-4778(1994) and the Frameelot program of Bibb et al., Gene 30:157-66(1984) as implemented at http://www.nih.go.jp/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   correct initiation codon. Where possible we choose an initiation codon (atg, gtg, ttg or (att)) which is preceded by an upstream ribosome binding site sequence (optimally 5-13bp before the initiation codon). If this cannot be identified we choose the most upstream initiation codon. Important of the sequence MAY NOT be the entire insert of the sequenced clone. It may be shorter because we only sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . .98
'note="nominal overlap with Streptomyces coelicolor cosmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               project,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptomyces coelicolor sequencing at The Sanger Centre is funded by the BBSKR and Beowulf Genomics
Details of S. coelicolor sequencing at the Sanger Centre are available on the World Wide Web.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (URL; http://www.sanger.ac.uk/Projects/S_coelicolor/) CDS are numbered using the following system eg SC7B7.01c. SC (S. coelicolor), 7B7 (cosmid name), .01 (first CDS), c (complementary
                                                                                                Actinomycetales; Streptomycineae; Streptomyces 1 to 35576)
                                                                                                                                                                                         Redenbach, M., Kieser, H. M., Denapaite, D., Eichner, A., Cullum, J., Kinsshi, H. and Hopwood, D.A.

Kinsshi, H. and Hopwood, D.A.

A set of ordered cosmids and a detailed genetic and physical map for the 8 Mb Streptomyces coelicolor A3(2) chromosome

Mol. Microbiol. 21 (1), 77-96 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     overlapping sections once, or longer, because we arrange for a small overlap between neighbouring submissions. Cosmid 2D46 lies between and overlaps cosmids D66 and D8 on the Asel-D genomic restriction fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nominal overlap with Streptomyces coelicolor cosmid D66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission Streptomyces coelicolor sequencing proje Submitted (03-AUG-2000) Streptomyces coelicolor sequencing proje Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge CB10 ISA E-mail: barrell@sanger.ac.uk Cosmids supplied by Prof. David A. Hopwood, [3] John Innes Centre, Norwich Research Park, Colney, Norwich, Norfolk NR4 70H, UK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="Repeated degenerately at 1210. .2414. This DNA repeat manifests as a duplication of a pairs of CDSs su that 2SCD46.01c is similar to 2SCD46.02 aimilar to 2SCD46.04.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 (bases 1 to 35576)
Brown, S.P. and Harris, D.
Upublished
3 (bases 1 to 35576)
Bentley, S.D., Parkhill, J., Barrell, B.G. and Rajandream, M.A.
Direct Submission
Streptomyces coelicolor A3(2).
Streptomyces coelicolor A3(2)
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Streptomyces coelicolor A3(2)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="taxon:100226"
/clone="cosmid 2D46"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (EMBL:AL358692) complement(142. .147)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /strain="A3(2)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         т. .1200
```

gene

CDS

```
17425 GGCGGCGTCGCCCATGCGGGGCGTCAGATCGGGGTTGTCGGCGAAATCGCGCAGCACGCG 17366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AC092541 9297 bp DNA linear HTG 16-JUL-2001 Homo sapiens chromosome RPCI-11 clone RP11-203G11, WORKING DRAFT SEQUENCE, 6 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VVGARVVLMDFDGPICRLFAGYSADRVAGELVDWLERIGLKELLTGEEGVÄPDPHVLL
PAVDRHRRSDLVABFEERLYBELGRAVPTAMPTAJADLIRWSALGVOLAVTINNS
PARVSEYLETERDLLGCEAPHTGREGDPHLIRPDHOLIRRALSAMGAAPARALMYGDS
ASDVTAARRAGVPFLGYGHNERKTKLLKQAGADTVVDSLEPVLRLLWENGTPAPA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                 ELAEEFGVERGTVRQALRALQEDGLLTNVSKGSPPRIAEPATPRAEPQPTMVALGPRL
AEAFAAPHVRVDVVCHTSETLMLALSEPLRLIHEGRIHPESIDFRVLMPSRDIALAFP
                                                                                                                                                                                                                                               VLVEDEEDDPVHORWLQMRNAQARVLOHNLHAVRSTHRVDVRIAFRALPFTPPWKLYL.
LNGEEALLGYYMLTRREEEYESRTLQMYDALGSQSLLFSFLNRTGHRDAVFVEESQKW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="SPTREMBL:09FCH8"
/translation="MVRRPLGNHHHGHDTLLVTSDTDQTEPVSERTGRDEQSEALRDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2504. .3076
Agene-"25Cu46.05"
/note-"Pfam match to entry PF00702 Hydrolase, haloacid
dehalogenase-like hydrolase, score 37.40, E-value 3.2e-07"
                                                                                                                 /db_xref="SPTREMBL:Q9FCH9"
/translation="MVVTQENVSVNGSRRLSSQEIADVLRERIRGGDLRAGDRLPTQA
                /product="putative GntR-family transcriptional regulator"
/protein_id="CAC04026.1"
/db_xref="GI:9857147"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        278 GGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAAATCGCGCAGTGCGCC 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   338 GGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGAC 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7363. .3184

/gene="25CD46.05"

/gene="25CD46.05", possible hydrolase, len: 273aa; weakly

similar to many proposed phosphatases eg. TR:CAB84916

(EMB1-AL162756) putative phosphatase from Neisseria

menigitidis (235 aa) faata scores; opt: 195, z-score:

238.2, E(): 8.8e-06, 29.5% identity in 237 aa overlap.

Contains Fram match to entry pr00702 Hydrolase, haloacid

dehalogenase-like hydrolase. Note possible alternative
                                                                                                                                                                                                                                                                                                                                                                                                   /note="Pfam match to entry PF00392 gntR, Bacterial regulatory proteins, gntR family, score 69.30, E-value
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4.1%; Score 48; DB 1; Length 35576; 50.0%; Pred. No. 0.0027; ive 0; Mismatches 120; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="putative hydrolase"
/protein_id="CAC04027.1"
/db_xref="GI:9857148"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /sobs. .3184
/gene="2SCD46.05"
/note="SCO4191"
/363. .318/
                                                                                                                                                                                                                                                                                                                                                                   /gene="2SCD46.04"
                                                                                                                                                                                                                                                                                                            FDALWETITTDMTLS"
1599. .1751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3246.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local
Matches 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 35
AC092541
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                          /golde="25CD46.02, possible GntR-family transcriptional regulator, len: 303aa; similar to many eg. TR:Q9RIQ2 (RML5.AJ243257) KorA protein from plasmid psNN1 of Streptomyces natalensis (245 aa) fasta socres; opt: 175, z-score: 204.2, E(): 0.0069, 28.2% identity in 238 aa overlap. Also strongly similar to nedshbouring CDS 25CD46.04 fasta socres; opt: 1074, z-score: 984.2, E(): 0, 57.6% identity in 302 aa overlap. Contains Pfam match to entry PF00392 grtR, Bacterial regulatory proteins, gntR family and helix-turn-helix motif (Score 1967 (+5.89 SD)) at residue 46-67. Note possible alternative downstream translational start codons."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1539. 2414
/gene="2SCD46.04"
/gene="2SCD46.04"
/forte="2SCD46.04"
/note="2SCD46.04"
/note="2SCD46.04"
/note="2SCD46.04"
/note="2SCD46.04"
/note="2SCD46.04"
/sequlator, len: 291aa; similar to many eg. TR:09RIQ2
regulator, len: 291aa; similar to many eg. TR:09RIQ2
(RMBL:AJ243257) KorA protein from plasmid pSNA1 of
Streptomyces natalensis (245 aa) fasta scores; opt: 175,
z-score: 209.9, E(): 0.00033, 29.9% identity in 194 aa
overlap. Also strongly similar to neighbouring CDS
2SCD46.02 fasta scores; opt: 1074, z-score: 984.2, E(): 0,
57.6% identity in 302 aa overlap. Contains Pfam match to
entry PF00392 gntR, Bacterial regulatory proteins, gntR
family and helix-turn-helix motif (Score 2173 (+6.59 SD))
at residue 41-62. Note possible alternative downstream
translational start codons:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="2SCD46.03c, unknown, len: 62aa; strongly similar to enalghbouring CDS 2SCD46.03c fasta scores; opt: 169, z-score: 236.7, E(): 1.4e-07, 51.1% identity in 45 aa overlap. Hydrophobic."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MPTOAQLAEEFGVERGAVROALRILOSERLITINVSKGSPATVAPDPYGGOGGPEARPM
PTTVALASRIAAAFAAEHVEIDALCLISVSLTLALGEPLSQIHAGRLKPAKVDVRVLL
PSGDIDLAFPVAVSGGAAGGPVHERWLAMRNAQGQVLRHNLLSLRATHGIDVRVSFRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LPETPPVKLYVLNGSBALFAYYLGRREQEIDHEQLEMYDAEGIRSTLFAFEQGGGLR
DGVFVKQSRLWFDALWGTISSELVLAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   translation="MPVLALVSAVFVIAFEQIVQWRYGATGIVGLLLTIGIKAKSPS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="SPTREMBL:Q9FCIO"
/translation="MVVEPEHAPVNGRERPQRPQATHREVADELRARIRSGRLRPGQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          such
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="putative GntR-family transcriptional regulator"
/protein_id="CAC04024.1"
/db_xref="G1:9857145"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="Repeated degenerately at 1210. .2414. This DNA repeat manifests as a duplication of a pairs of CDSs su that 2SCD6.01c is similar to 2SCD46.03c and 2SCD46.02 similar to 2SCD46.04."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="Pfam match to entry PF00392 gntR, Bacterial
regulatory proteins, gntR family, score 64.70, E-value
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="hypothetical protein"
/protein_id="CAC04025.1"
/db_xref="GI:9857146"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'db_xref="SPTREMBL:Q9KIM3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(1210, .1398)
/gene="2SCD46.03c"
/note="SCO4189"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(1210. :1398)
/gene="2SCD46.03c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VSSAGAVLLALLVAGPAL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1539. .2414
/qene="2SCD46.04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     364. .546
/gene="2SCD46.02"
                                                                                       /gene="2SCD46.02"
/gene="2SCD46.02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'transl_table=11
                   /note-"SC04188"
289. .1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="SC04190"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             210, 2414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_unit
```

gene

CDS

gene

```
Direct Submission
Submitted (16-JUL-2001) Genome Sequencing Center, Washington
University School of Medicine, 4444 Forest Park Parkway, St. Louis,
MO 63108, USA
                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 9297)
Waterston, R.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: This is a 'working draft' sequence. It currently consists of 6 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequencing vector: M13; 0%
Sequencing vector: plasmid; 100%
Chemistry: Dye-primer Er; 0% of reads
Chemistry: Dye-primer Er; 0% of reads
Chemistry: Dye-terminator B19 Dye; 100% of reads
Assembly program: Phrap; version 0.990319
Consensus quality: 6638 bases at least Q40
Consensus quality: 7446 bases at least Q30
Consensus quality: 7999 bases at least Q30
Insert size: 173000; agarose-fp
Insert size: 8797; sum-of-contigs
Quality coverage: 0.06 in Q20 bases; sum-of-contigs
Quality coverage: 0.06 in Q20 bases; sum-of-contigs
                                                                                                                                                                                                                                                                                                                                                                                                         Center: Washington University Genome Sequencing Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4724: gap of unknown length
4724: contig of 1793 bp in length
4824: gap of unknown length
6374: contig of 1550 bp in length
6474: gap of unknown length
8130.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           contig of 1143 bp in length
gap of unknown length
contig of 1588 bp in length
gap of unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8130: contig of 1656 bp in length
8230: gap of unknown length
9297: contig of 1067 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4825. .6374
/note="assembly_name:Contig23"
6475. .8130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="assembly_name:Contig16"
1244. .2831
/note="assembly_name:Contig20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2932. .4724
/note="assembly_name:Contig22"
1825. .6374
                                                                                                                                                                                                              The sequence of Homo sapiens clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----- Summary Statistics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="RPCI-11"
/clone="RP11-203G11"
                        AC092541.1 GI:14719349
HTG; HTGS_PHASE1; HTGS_DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                          2 (bases 1 to 9297)
Waterston, R.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ...1143
                                                                            sapiens.
                                                                                               Homo sapiens
                                                                                                                                                                                                                                         Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                             ORGANISM
                                                                                                                                                                                     AUTHORS
TITLE
                                                                                                                                                                                                                                    JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
```

```
Pyrococcus furiosus DSM 3638.

Pyrococcus furiosus DSM 3638

Archaea; Euryarchaeota; Thermococci; Thermococcales;
Thermococcaceae; Pyrococcus.

1 (bases 1 to 10991)
Madder, D.L., Weissy, R.B., Dunn, D.M., Cherry, J.L., Gonzalez, J.M.,
DiRuggiero, J. and Robb, F.T.

Divergence of the hyperthermophilic archaea Pyrococcus furiosus and
P. horikoshii inferred from complete genomic sequences
Genetics 152 (4), 1299-1305 (1999)
                                                                                                                                                                                                                                                                              6278
                                                                                                                                                                                                                                                                                                                                                 6338
                                                                                                                                                                                                                                                                                                                                                                                                                       6398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AE010283 10991 bp DNA linear BCT 25-FEB-2002 Pyrococcus furiosus DSM 3638, section 158 of 173 of the complete
                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      133
                                                                                                                                                                                                                                                                                                                253
                                                                                                                                                                                                                                                                                                                                                                                     313
                                                                                                                                                                                                                                                                                                                                                                                                                                                         373
                                                                                                                                                                                                                                            134 CGTTACCGGAAAACCGCTGAACAAATTCGGGCTGAAAAGAGGATCCGCCGTTATCTGTT 193
                                                                                                                                                                                               74 TCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGATAAATTACTC
                                                                                                                                                                                                                                                                                                             194 GCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATC
                                                                                                                                                                                                                                                                                                                                                                                 254 AAACCGGTACTCAATATCTTCTCTGGCGCTGCCTTCATCCGGAAGCGTTCCGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                   6219 CCTGTCCCAAACACACTGAATCAGAATTGGCAGCGATGAGACTCTAGTGAATGTGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                     314 GGATAAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 (bases 1 to 10991)

Robb, T., Maeder, D.L., Brown, J.R., DiRuggiero, J., Stump, M.D.,

Yeh, R.K., Waiss, R.B. and Dunn, D.M.

Genomic sequence of hyperthermophile, Pyrococcus furiosus:

implications for physiology and enzymology

Meth. Enzymol. 330, 134-157 (2001)

21079003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Submitted (12-FEB-2002) Human Genetics, University of Utah, 20
South 2030 Bast, Salt Lake City, UT 84112, USA
Location/Qualifiers
                                                                                                                                          Gaps
                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bb,F.T. and Brown,J.R.
the Pyrococcus furiosus genome
                                                                                                        Length 9297
                                                      508 others
                                                                                                    Score 47.4; DB 2;
Pred. No. 0.0032;
0; Mismatches 207;
/note="assembly_name:Contig24"
8231. 9297
//note="assembly_name:Contig6"
//1835 c 1804 g 2548 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Robb, F.T. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6459 NNNNNNNNNNNNTG 6476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3 (bases 1 to 10991)
Weiss, R.B., Dunn, D.M., Ro
The complete sequence of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          374 CCCTGTCACATTCTTCTG 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AE010283 AE009950
AE010283.1 GI:18894070
                                                                                                    4.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4 (bases 1 to 10991)
Weiss, R.B.
                                                                                               Query Match
Best Local Similarity 34.9 Matches 111; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished
                                                      đ
                                                  2602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0430560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11210495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   genome.
                   misc_feature
                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 36
AE010283/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PUBMEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                    ORIGIN
                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                 ä
                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
```

CDS

```
DKRIVKYPGANNEKEVKENYLKLARHLHLSSNPLPLVEKAVNIAKNLGITVSFDPGEM
EVPKHIEEKIDILMANBEDERKKYGSLEKITELKSRIAIATLAGGALVRDENGNYYE
IRGLSAKAIDTTGGGDSFDAGFIYGYLNGWDVKDSAKLGMLAYLTVQKVGARSAVIP
LDEVKKIAKELGLDLPPQ"
COMPLEMENT (7471. . 8292)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MGVTEELEALKGVARKNWKIFLSYKAWFVSDILMGFFFAGNALL
IGLGLTGKRTSEALAELTGYSDYLTFAILGFWVLAFGMTFMSGFVWSIVDELYAGTLE
                                                                                                                                                                                                                     /translation="MKKRREFSLIAFLISLAYLYRSIDLKELPSAISEANYFYLTVAF
LLSILTVLLGALRWYLVMRWYONTSFRRTLQAFISGYYLMAVLPPTLGHITKVKLVGG
PYRALSSLAFGIAIEIIIVLSFALILFGFTKLGLFGLGIILLAFVYDKIFHRAALIV
FKLWENGLKKYPNLLKNWYQRLZGKKREKLITVSTFLISFAVIILQYFGLVFY
GKAFLLDIPIKKAFYAFIMSVVFASLSGIPSGVANEFGILVGIGSSTRAALTAFIYK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAL82010.1"
/db_xref="G1:18894077"
/translation="MKLDVICMGNLNYDITFMLERFPEFHEKVNAKKVYTGLGGSAGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SSFAAPMRRITFFLGSIVVRLILDLLYLGVYIPLFWVIFGLEINFVNLLKGIIVLIVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AFGMIGLGLMAAGIVIYLKDPCPFVNILEMLVPALSGAMYPVKILPKPLQIMAKLLPY
APTTEAVRKVALVGLSKSAGEIMYLSLISIIYTLLGVLTYRWAERRAREIGLKSY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Function Code: 14.1 Transport and Binding Proteins:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATWLSFLGLRVGFIGAVGNDDFGRLHLEFFEKIGVDTRGIKVVDEPTGVAVMMVIGE
                       'note="Function Code: 14.1 Transport and Binding Proteins:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="mhnlaiklrerghevgivtnnrvtgkekelerygidlikipgvv
Spllevnityglksselneflnnfdvihshhafmplalkavkagrtmekatlfthsi
                                                                                                                                      (ATP-binding protein)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //orde="Function Code: 3.2 Cell Envelope: Surface polysaccharides, lipopolysaccharides and antigens" /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Function Code: 3.2 Cell Envelope: Surface polysaccharides, lipopolysaccharides and antigens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(7471. .8292)
/gene="PF1887"
/note="Function Code: 16.1 Conserved Hypothetical"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
/product="conserved membrane protein"
                                                                                                                                         transporter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="glycosyl transferase"
/protein_id="AAL82009.1"
/db_xref="G1:18894076"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="hypothetical protein"
/protein_id="AAL82011.1"
                                                                                                                                                                                                                                                                                                                                                                  FIFQYQYSIIGAFVFYKLLSGGNESSS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="sugar kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="PF1888"
complement(8279. .9046)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(8279. .9046)
                                                                                                                                   /product-"putative ABC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="GI:18894078"
                                                                                                                                                                                           /db_xref="GI:18894075"
                                                                                                                                                                 /protein_id-"AAL82008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                            5490. .6566
/gene="PF1885"
5490. .6566
                                                                                                                                                                                                                                                                                                                                                                                                                                              5490. .6566
/gene="PF1885"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6593. .7477
/gene="PF1886"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6593. .7477
/gene="PF1886"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="PF1887"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene-"PF1888"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                    General"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         General
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="MVRRIRRMDIMDPFDLIREIQEEIDAMFDEFFSRPRLWTYRRWS
EPAMYEERVGEVWREPFVDIFDNGDEFVITAELPGVRKEDIKVRVTEDTVYIEATVKR
EKELEREGAVRIERYFTGYRRAIRLPEEVIPEKAKAKYNNGVLEIRVPKKHPTKKESE
                                                                                                                                                                                                                                                                                                                                                                                                                       YMPPGIYKEVKNFLEDIPPEMELYIIKKPPNVHDIKIPAFVVYELIEDIRRRVDKGLR
VAEKAVRESVIDTNNVDKIIQKLRRNYRKALREGIVDSTEDFELILLAKEIDGIIVSA
DVGILTWAEKMGIKWVDAFKFKELLDELVEKVESEKERK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation-"MAEHVVYIGKKPVMNYVLAVITOFNEGAKEVSIKARGRAISRA
VDVAEIVRNRFLKDTVDIKEIKIGTEELPTADGRTTNTSTIEIVLERKV"
complement(1161. .3551)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALRRPGREDREI EIGIPDKOGRKEILQIHTRGMPIEPDFRKDDVLKILEELRGEEKFK
DVIDRAIDQVSKAKEEEIQQVLKRISQDLYEEVKARLIDKLLEELAEVTYGFVGADLA
ALAREAAMAALRRLIRGKIDFEAETIPREVLEELKVTRRDFYEALKMVEPSALREVL
                                                                                                                                                                                                                                                                                                                                                                                               /translation="MIRFILDTSIFVNPDVRKKFGNTPTEAMKTFLKYAEKLFGKVEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MSEKKKEVKLKVASAYQRDVGRGIVRIDRETMRELGISPGDVVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IIGTKNTAAIAWPAYPEDEGLGIIRMDGTIRKNAGVGLGDEVIVRKADVKEARKVVLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DFDVSERPVKEVEKRITTGVTYEDIGGLKDVIEKIREMIELPLKHPELFEKLGIEPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GVLLYGPPGTGKTLLAKAVANEANAYFIAINGPEIMSKYYGESEERLREVFREAEENA
PAIIFIDEIDAIAPKREEVTGEVEKRVVAQLLILMDGLKSRGKVIVIGATNRPDAIDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LAKAVATESQANFIAIRGPEVLSKWVGESEKRIREIFRKARQAAPAIIFIDEIDAIAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RGTDVNRVTDRIINQLLTEMDGIVENSGVVVIGATNRPDIIDPALLRPGRFDRLILV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PAPDEKARLEIFKVHTRGMPLADDVDLKELARRTEGYTGADIAAVCREAALNAMRRAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PTEPIRFGRDFIEWLHERLIGRPVVRGDYIKVGVLGQELTFVVTTTQPAGVVQITEF1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IEIPNVHWDDIGGLEEVKQQLREAVEWPLKYPEAFRAFGITPPKGILLYGPPGTGKŢI
                                                                                                                                                                                                                        /note="Function Code: 12.3 Transcription: RNA processing"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="Function Code: 4.3 Cellular Processes: Chaperones;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EQGIIKEGMKADEIRKVAKVTMKDFEEALKKIGPSVSKETMEYYLKVQEKFKQARG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="cell division control protein 48, aaa family"
/protein_id="AAL82006.1"
/db_xref="GI:18894073"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(1161. .3551)
/gene="PF1882"
/note="Function Code: 4.2 Cellular Processes: Cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="Function Code: 16.1 Conserved Hypothetical"
                                                                                                                                                                                                                                                                                                     Product="mRNA 3'-end processing factor homolog'
Protein_id="AAL82004.1"
1. .10991
/organism="Pyrococcus furiosus DSM 3638"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'trans1_table=11
'product="small heat shock protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="hypothetical protein"
/protein_id="AAL82005.1"
/db_xref="G1:18894072"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="AAL82007.1"
/db_xref="GI:18894074"
                                                                               'db_xref="taxon:186497"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(3723. .4226)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(3723. .4226)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(777. .1058)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(777. .1058)
                                                                                                                                                                                                                                                                                                                                                                  /db_xref="GI:18894071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     division; (cdc48-2)"
                                                    /strain="DSM 3638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4535. .5449
/gene="PF1884"
4535. .5449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="PF1881"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="PF1881"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'gene="PF1883"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             codon start=1
                                                                                                                                      'gene="PF1880"
                                                                                                                                                                 175. .774
/gene="PF1880"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="PF1882"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="PF1883"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      class I)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3FEVKVE
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
```

CDS

CDS

```
/traislation-"MPFRELYPRWIMNGRTATEPGESDVPASPFTFDLMNPLSWITAA
RKLRNIKPDVLLIAYWSGVLAPLCALMRRASGLPTFVLLHNFTSHEPISGESMLKRML
VSSDGFITLSGTVESELRAFRAPAARTISLFHPLYERQTPGPSRAAARRSIGLPBDAP
VLLFGTVREXGLDTLAARAMALVLARESSARLVVAGEFILGSSRFREBARRIGIDGA
VEFRGGYVPAGEVATLMAAADAVVLPYRSATOSGIVPLALGHGVPVIACDTGGLGNOV
EHGRTGWLVREBGAARALADGILDFFRERERLPLEEGISDFRRRNSWREFASGAATFLE
                                                                                                                                                                                                                                                                                                                                                                                                                        QPLLDELQXPWVGIAAPKILYMDDPGRIWYAGGVLESATGLIEHTGIRQPDGPRFDTP
EPVWYATGCCLAMRCRVFEEVGGFDERFRWYGEDVDLSMKVRERGLIVMYQPASRIWH
RVSASSGGEMNLGRQLRKSGAAMMLFAKHGMIGGLVLYPLLLPFRALLGLLRFQFFRW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MPAADTCVRNARLADASAISRITEGYAGEGIMLKRSVENIIEHI
RDFFVADYKGQVIGCCAIAFYTVKLAEIRSLAVLEEFRNKGIGRLLVEKAEAVLSEEG
VNEVFVLTLNSGFFRRMGYKEIEKEYFPQKIWRDCTNCPKRMACDEIAMVKTL"
                                                                                                                                                                                                                                                                                                                                                                     /translation-"MNGGKTAVIVLGWNGAADTLACLASLAKVRQPAFTVILADNGST
DGTVGLVRQAFPEVEILELGRNLGFAAGNNAAFRSLRGRGFDRVVFLNNDTVVDDGFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MIVQEVIIRNSAGLHTRPAAAVVKLASRFKSDFFIEMDGLEINA
KSIIGVMSLAAPRGSRMVLKLEGEDEAEAAKHLIEFFEQGFGEA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(2273. .2539)
/gene="ptsH"
/note="identified by match to PFAM protein family HMM
                                                                                                                                                            /gene="CT2209"
/note="identified by match to PFAM protein family HMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="CT2212"
/note="identified by match to PFAM protein family HMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(3058. .4065)
/gene="obg"
/note="identified by match to PFAM protein family HMM
PF01018"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note-"identified by match to PFAM protein family HMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product-"acetyltransferase, GNAT family"
/protein_id-"AAM73428.1"
/db_xref-"GI:21648256"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="phosphocarrier protein HPr"
/protein_id="AAM73427.1"
/db_xref="G1:21648255"
/organism="Chlorobium tepidum TLS"
/strain="TLS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/product="glycosyl transferase"
/protein.id="AAM73426.1"
/db_xref="G1:21648254"
                                                                                                                                                                                                                                                                                    /product-"glycosyl transferase"
/protein_id-"AAM73425.1"
/db_xref-"GI:21648253"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="CT2210"
complement(1096. .2121)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(2604. .3071)
/gene="CT2212"
                                                   /db_xref="taxon:194439"
complement(242. .1099)
/gene="CT2209"
complement(242. .1099)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(1096. .2121)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(2604. .3071)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(3058. .4065)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(2273. .2539)
                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="ptsH"
/note="CT2211"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="CT2210"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="CT2213"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TSSQEREEA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF00583"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PF00381"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF00534"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ICSRRSA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chlorobium.

E l (bases 1 to 10148)

S Elsen, J.A., Nelson, W.C., Heidelberg, J.F., Wu, M.,

Dodson, R.J., Deboy, R., Gylnn, M.L., Nelson, W.C., Haft, D.H.,

Hickey, E.K., Peterson, J.D., Durkin, A.S., Kolonay, J.L., Yang, F.,

Holt, L., Umayami, L.A., Mason, T., Brenner, M., Shea, T.P., Parksey, D.,

Nierman, W.C., Feldblyum, T.V., Hansen, C.L., Craven, M.B., Radune, D.,

Vamathevan, J., Khouri, H., White, O., Gruber, T.M., Ketchum, K.A.,

Venter, J.C., Tettelin, H., Bryant, D.A. and Fraser, C.M.

The complete genome sequence of Chlorobium tepidum TLS, a

photosynthetic, anaerobic, green-sulfur bacterium

L Proc. Natl. Acad. Sci. U.S.A. 99 (14), 9509-9514 (2002)
                                           /translation-*MEFRYPLKVISSILVGLVFLLQFVYFGQAILGGRFSRLLEEATG
VGDYPTVLJGTVLKWVSVSPMEASVWGVRRELQRGTFESNVMAPTGILKMIMGLAIS
WMAMDSIIMLLVFALGVVIFDLKVSAITVARAIPIIALAFVYFLGFGIVFAGLVMMLK
NIGPLANIFEEVILESGVFFPLSTLPEITVRISHIPITHATSAVRIFIGLSYSSV
VNEITAMLILLPVYWAISLAVFKWAEKVTRWMGYGGY*
CONDI-GMENT (9079. 10035)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6344 ACCAACGTCTGTAGCTACAACTGGGACTCCTGATGCCATTGCTTCGAGCACAACTATACC 6285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BCT 01-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCGTCTCACTGGCGGTAACGGGCACGCGGAGACTGACGCTTCAGCCAGTACCATACC 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Elsen, J.A., Nelson, K.E., Paulsen, I.T., Heidelberg, J.F., Wu, M., Elsen, J.A., Nelson, K.E., Paulsen, I.T., Heidelberg, J.F., Wu, M., Dodson, K.J., Deboy, R., Gwinn, M.L., Nelson, W.C., Haft, D.H., Hickey, E.K., Peterson, J.D., Durkin, A.S., Kolonay, J.L., Yang, F., Holt, I., Umayam, L.A., Mason, T., Brenner, M., Shea, T.P., Parksey, D., Wlerman, W.C., Feldblyum, T.V., Hansen, C.L., Craven, M.B., Radune, D., Vamathevan, J., Khouri, H., White, O., Gruber, T.M., Ketchum, K.A., Venter, J.C., Tettelin, H., Bryant, D.A. and Fraser, C.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   350 CACATCCCCCACGGGTAACAGCGTCCCTGTCATTCTTCTGAATGACATCAGGGATCCC 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chlorobium tepidum TLS section 188 of 194 of the complete genome. AE012967 AE006470 AE012967.1 GI:21648252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (30-APR-2002) The Institute for Genomic Research, 9712 Medical Center Dr, Rockville, MD 20850, USA
                                                                                                                                                                                                                                                                                                                                                                             /product-"daunorubicin resistance ATP-binding protein drrA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                          /gene="PF1889"
complement(9079. .10035)
/gene="PF1889"
/note="Function Code: 15.2 Other Categorles: Drug
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chlorobium tepidum TLS.
Chlorobium tepidum TLS
Bacteria; Chlorobi; Chlorobia; Chlorobiales; Chlorobiaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.0%; Score 47.4; DB 1; Length 10991; ilarity 60.5%; Pred. No. 0.0033; Conservative 0; Mismatches 51; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AAL82013.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
1. .10148
                                                                                                                                                                                                                                                                                                                 analog sensitivity"
                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAACGCIIC 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Sim-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 37
AE012967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
```

셤

셤

ð

셤

õ

gene

CDS

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1243 CAGIGCCICGGCGCCCICCICGCGGACGAGCCAGCCGGIACGICCGGGCCGACTT 1302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PAT 28-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       354 TCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCGCCC 413
                                                                                                                                                                                                    /translation="MQGHAISIQPRCVITPMLYAFEKLATGQCPAYSAFDSIYDTYFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               414 GTCTCACTGGCGATAACGGGCACGCCGAGACTGACGCTTCAGCCAGTACCAAAC 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1183 GATGCCCTCCTCCAGCGCAGGCGCTCTCGCTCGCGGAAAAGTCGAGAATCCCGTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       341 CCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               401 AGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAAATCGCGCAGTGCGCCGGT
                                                                                                                                                                                                                                                                                                             /note="identified by match to PFAM protein family HMM PF01661"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacillus clausii.
Bacillus clausii
Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 10148;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 783;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     461 TACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 46.2; DB 6; Length 7
Pred. No. 0.0046;
0; Mismatches 53; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 4.0%; Score 47.2; DB 1; Length 1
Best Local Similarity 50.4%; Pred. No. 0.0038;
Matches 115; Conservative 0; Mismatches 113; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Methods for monitoring multiple gene expression Patent: WO 0229113-A 6111 11-APR-2002; Novozymes Biotech, Inc. (US); Novozymes A/S (DK) Location/Qualifiers
                                                                   by Glimmer2; putative"
                                                                                                                          /product="hypothetical protein"
/protein_id="AAM73434.1"
/db_xref="G1:21648262"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .783
/organism="Bacillus clausii"
/db_xref="taxon:79880"
a 150 c 204 g 203 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AX437696 783 bp DN
Sequence 6111 from Patent W00229113.
AX437696 GI:21662504
                                                                                                                                                                                                                                                complement(6837. .7355)
                                                                                                                                                                                                                                                                                          complement(6837. .7355)
                                                                   'note="identified
                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transl_table=11
                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Berka, R. and Clausen, I.G.
                         6681. .6824
/gene="CT2218"
                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                   /gene="CT2219"
'gene="CT2218"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 3.9%;
Best Local Similarity 59.5%;
Matches 78; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AX437696/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /trānslation="willsnekwyawwkryhiamrallialaaytwilegtaracwdpad
Evnaerticwerkadpslerpfskaycyavesdiykcgfwiycgchckcyvfdogrpi
Ghatytwenycpolgcosfseiiffkdraaladftkcnyelsaofayvayracwatni
Dysncyaytampnacimceltycaokftfroyr"
                                                                                                                                   VYLRANKQLTTLLDFKYRKSYLAGRGGHGLGARKSGKDGKDVIGVPCGTVVRNVETG
VYLDMYDDGDEIMLARGGRGGWGNOPHRATATTRAPREDEGEDEBTSELEMELKLMA
DVGLVGFPNAGKSTLISVLSARPKTADYPFTLLVPNLGITRYEDYKSFVMADIPGII
EGAARGRGLGIQFLAHIERTRILIMVPSNTEDIAAEYATLLKELEKFDPSILSKPRL
VYITKMDIAPEDFTMPELEKGVKVLAISSVAGGGLKALKDELMRQVSLQNQSPSEHAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PKEASAYLOKLKQIVRYLGISDGNMEEGSLRCDANVSVRPVGATEYGTRTEIKNMNSF
RVVERALFEAKRHIEVIEGGGTVQFRLKMPANLEFRSMGREHAHDYRFPDDDL
RVPLVDDEMTRAMGELPEPPEDRAAREVSEGIPAUDAGVITVDRELADYRESTVKV
SGDARASSNWVMGEVWRTLKEKYLDIHKFAISPERLGGLIKLINAGAISNTIAKQVFE
IMQODBATABALVERRGLADYSDRGALEAAIREILEANQKQLEQYRSGKTQLFGFFVG
QCMQKMKGRANPKWYDILRSMLDA*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation-"mpassksrtsavptieeliorleeitrnienpdfglenslalye
egmslaeecrkrlletrkkletinpaetarpakpenapesprmndlegtes"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation-"MNYEIVVGLEVHCQLNTESKAFCGCSAKFGKPANTNVCPVCLAL
PGALPVLNARVVEDAVKLGLATNCTIARHSILARKNYFYPDLPKGYQISQYEEPICSE
GVIHIDLEEGGKDVRLVRIHIEEDAGKSIHDIGDDTYIDVNRCGVPLLEIVSYPDMRT
                                                                                                                   /translation="MKFVDSAKISVKAGDGGRGCVSFRREKFVPKGGPDGGDGGRGGH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product-"hypothetical protein"
/protein_id="anan73433.1"
/db_rref="G1:21648261"
/translation-"MDNKIRPAKSCNATPAYNVRFSSLKTRIASERKKPKNQLVGR"
6681. .6824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
/product="glutamy1-tRNA(Gln) amidotransferase subunit
/protein_id="Am74311.1"
/db_xref="G1:21648259"
                                                                                                                                                                                                                                                                                                                                                               /note="identified by match to PFAM protein family HMM PF02609"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'note="identified by match to PFAM protein family HMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'product="exodeoxyribonuclease, small subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'note="identified by Glimmer2; putative"
                                           /product="GTP-binding protein Obg"
/protein_id="AAM73429.1"
/db_xref="G1:21648257"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="hypothetical protein"
/protein_id="AAM/3432.1"
/db_xref="G1:21648260"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="AAM73430.1"
/db_xref="G1:21648258"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(5910. .6491)
/gene="CT2216"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(4437. .5864)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(4437. .5864)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="CT2217"
/6475. KFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                       transl_table=11
                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="gatB"
/note="CT2215"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5475. .6603
/gene="CT2217"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="CT2216"
                                                                                                                                                                                                                                                                                                                      note="CT2214"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                codon_start=1
                                                                                                                                                                                                                                                                                                                                             135. .4422 |
|qene="xseB"
                                                                                                                                                                                                                                                                       4135. .4422
/gene="xseB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="gatB
```

CDS

gene

CDS

gene

à 셤

```
GDCVMVFFGDPSTQGAKKDAVAAVSMCIAMEKHMKVLRQQWRAQGITKPLEIRMGINT
GYCTYGNFGADTRMDYTIGREVNLASRLESASEAGEILISHETYSLIKDVIMCRDKG
QIAVKGFSRPVQIYQVVDSRRDLGAAPSYVEHELPGFSMYLDTNNIQNYDKERVIQAL
2569...3042
2569...3042
/gene="RA318"
                                                                                                                                                                                                                                                                                                                                                                              /translation="MEQFGIDALAPQPQVLEAPGAELVAQARGAHQHRPARPMEGAQE
GAPGQNPPPRTAVTQVFGARNUNRGEVQAALAQPAPRGPABRPLGGQVHGIRCEGLD
GPARAPEVPCQCDFRIAGTGQAAEVGGRQHPYLVAQQPQLALQGQQAGDDSVDLR"
complement(3069...3881)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MSTAQRETSNRKQRVRTLWISDVHLGTRDCQAEHLAAFLKRYHA
DRYYLVGDIDGWKLRGGIYWPQAHTNVIRRLLTLSKRGTEVIYVTGNHDEFLRRYSS
LIGHIRLVDBAVHSTADGRKLLVIHGDGPVITRYHWHLAFLGDSAYETTLLINRWL
NHWRRNGYGYWSLGAYLKHKYTAVNFISDFEBAIAHECHKRGLDGVVCGHHHAEI
RRIEGVDYLNCGDWVESCTALIEHWDGSIQLYRLAEEQARLAAQAAAVEPAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="probable transcriptional regulator"
/protein_id="AAG06608.1"
/protein_id="AAG06608.1"
/bcrein_id="g49341"
/bcrein_id="g49341"
/translation="kGSILSLRHYSHDQIVHSHDHAQIVLGISGCLDFEVEGRGSRVL.
RQTFAVVPAQARHACSSPSGSRCLVLDLPCDGSLLLGIGEHAEAGRRLFERPQALSLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PAGGQLVNWIASGPINDPVIAHQGAGLLLASLASERQPPRQQPRLPLASLDAYLDRHA
AHPLQVADLARLAGLSVARPHSLFLAETGGTPMDYARSRRLHQAHELLLESSLAVGEI
AARVGYASQSAFTAALVREFGVTPRQLRRESRDKTG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="G1:949343"
/translation="MNRRSALAALHGGALLFGLTGVFGKLASASPGVIVFGRALFAVL
ALGIFARLAGGAWRALGFAGNTRLALCGLLLAGHWVSFFIAVKTAGYALATLGFASFP
ATGIFFRIALAGGAWRALGFAGNTRLALCGLLLAGHWVSFFIAVKTAGYALATLGFASFP
AFTVILEGLLFRERIHLABGLLVVLVSLGLVLPTPNFDLASGATLGLLWAILSGLLFA
LLSTANRSAGQVGFVQAALWQNLVVALCLLFFAVSELPALFALDWLWLALLGVFCTG
LAHSLEVASLAVVARTAALVFALEPVYGIAFAWLLFHETFGFRWFLGGALIILAIVL
SARLGARGRKTAVGDERGDPERA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MDIIEWQDFERVELRYGTILSAAPNPKARKPAYVLEVDLGPLGL
RTSSAQLTAHYQAEQLYGRQVLCVCNFAPKQIAGVRSEVLVTGYYDSEDRYVLAGFDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
/product-"hypothetical protein"
/protein.id="AAG06607.1"
/db_xref="G1:9949340"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="hypothetical protein"
/protein_id="AAG06610.1"
                                                                                                                                                                                                                                                                                       /product="hypothetical protein"
/protein_id="AAG06606.1"
/db_xref="G1:9949339"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
/product="CsaA protein"
/protein_id="AAG06609.1"
/db_xref="GI:9949342"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="PA3219"
complement(3069. .3881)
/gene="PA3219"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(6206. .6847)
                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5202. .6101
/gene="PA3222"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4028. .4792
/gene="PA3220"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4028. .4792
/gene="PA3220"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ,202. .6101
'gene="PA3222"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note-"PA3221"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4857. .5192
/gene="csaA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4857. .5192
/gene="csaA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PLPNGARLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Stover, C.K., Pham, X.-Q.T., Erwin, A.L., Mizoguchi, S.D., Warrener, P., Hickey, M.J., Brinkman, P.S.L., Hufnagle, W.O., Kowalik, D.J., Lagrou, M., Garber, R.L., Goltry, L., Tolentino, E., Westbrook-Wadman, S., Yuan, Y., Brody, L.L., Coulter, S.N., Folger, K.R., Kas, A., Larbig, K., Lim, R.M., Smith, K.A., Spencer, D.H., Wong, G.K.-S., Wu, Z., Paulsen, I.T., Reizer, J., Saier, M.H., Hancock, R.E. W., Lory, S. and Olson, M.V. Bancock, R.E. W., Lory, G. Washington, Box 352145, Seattle, M. 98195, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Stover C.K., Phan.X.O., Erwin, A.L., Mizoguchi, S.D., Warrener, P., Hickey, M.J., Brinkman, F.S., Hufnagle, W.O., Kowalik, D.J., Lagrou, M., Garber, R.L., Goller, Y.L., Tolentino, E., Westbrock-Wadman, S., Yuan, Y., Brody, L.L., Coulter, S.W., Folger, K.R., Kas, A., Larbig, K., Lim, R., Complete genome sequence of Pseudomonas aeruginosa PAO1, an opportunistic pathogen
Nature, 406 (6799), 959-964 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="hypothetical protein"
/protein_id="RAG0664.1"
/db_xref="G1:9949337"
/translation="WASPDDRFHSFAEFYPYYLQEHSNAVCRRLHYVGSLLVLAVLF
HAVASQQMLWLLALPLVGYGFAWVGHFVFEKNRPATFKYPLWSFMGDWVMLKDAFTGR
                                                                                                                                                                                                                                                          AE004745 11884 bp DNA linear BCT 30-AUG-2000
Pseudomonas aeruginosa PA01, section 306 of 529 of the complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="probable adenylate cyclase"
Protein_id="AAG06605.1"
/db_xref="G1049338"
/translation="MKPTLPDRSPTSRSVASMREYYSRVLAYIACGASIAAGTYTQYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SYGILWMVPYALLYPHIAYHLGORFROHDPRKYTRALLAVDAVHCGLGWALLGFSVVP
SMPETLVLSFTALVTGGLRLLGMALLYSASSALLVAVLVAPPELLGWPFVAAVSILF
SGLYICITARFGHQGRLRAVVROETARGDERARILARLAKYLSPOWEMIFSGKKS
VRLETQRKKLTVFFSDIRGFTELSEELEABALTDLLLNYLNEWSIALKYGGTIDKFV
573 ATTITIGICGCGATCACAGGIACCCCGCAIGCCATCGCTICAAGCGCCCACTAAACCAAAG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Proteobacteria; gamma subdivision; Pseudomonadaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .11884
/organism="Pseudomonas aeruginosa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /strain="PAO1"
/db_xref="taxon:287"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="PA3217"
636. .2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              102. .419
/gene="PA3216"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            102. .419
/gene="PA3216"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 636. .2027
/gene="PA3217"
                                                                                                                                                                                                                                                                                                                                                                                                                                   Pseudomonas aeruginosa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                       AE004745 AE004091
AE004745.1 GI:9949336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 11884)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . 2027
                                                        474 GCTTCATTTTC 484
                                                                                         513 CTTTCTTTTC 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pseudomonas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10984043
                                                                                                                                                                                                                                                                                                                        genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                          LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                    RESULT 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                  AE004745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
```

```
AAVSSREPGRIVGARKESPLIVGVGEGEYFLASDVPAILNHTSRVIYLDDGEMVILDG
DLRVTDMEGNTVEKEVHSIDWSADMAEKGGYDHFWLKEIHEEPSAVRDTLTEWDEVLG
VVEEIGEVERICFVACGTSYHASLVGKYLFESLLGIPTDVILASEFRYSAGALNDRTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AIFISOSGETADTLNALRAANSRAKTIAIVNVIGSSATREAOHYLYTRAGPEIGVAAT
KTYVSOLTVIYMLVAAMGAPELMDRLERVPEFMERALEDEDGIKELAATGSDVSDFFF
IGRGFAYPTALEGALKLKEITYIHGEGYAAGELKHGPLALIDNGVPVVAISPFGFCHD
                                                                                                                                                                                                                                Methanobacterium thermoautotrophicum from bases 114371 to 125512 (section 11 of 148) of the complete genome.
AE000805 AE000666
AE000805.1 GI:2621213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
Submitted (10-AUG-1997) Genomics and Technology Development, Genome
Therapuetics Corporation, 100 Beaver Street, Waltham, MA
02154-8448, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="qutamine-fructose-6-phosphate transaminase"
/protein_id="AAB84677.1"
/db_xref="G1:2621214"
/translation="MCGINELEDGSAAPVLLECVRRLEYRGYDSVGIATSDPMIRI
KKDSGKIDEVDAELDADLEGTMGIAHYRWATHGLETAENAHHTDCSGEIAVVHNGI
IENYLEVKEELESEGHIFRSETDTEVIPHLIEKYMDEGMDLEAATALRKLRGAYAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KTLSNVEEVRARGARVIGVGSISDESLRKEADDFIGLDPEVDDVISPLVYIVPLQLLS
Methanothermobacter thermatotrophicus str. Delta H
Archaea; Euryarchaeota; Methanobacteria; Methanobacteriales;
Methanobacteriaceae; Methanothermobacter.

1 (bases 1 to 11142)

Smith, D.R., Doucette-Stamm, L.A., Deloughery, C., Lee, H., Dubols, J.,

Aldredge, T., Bashirzadeh, R., Blakely, D., Cook, R., Gilbert, K.,

Harrison, D., Hoang, L., Keagle, P., Lumm, W., Pothier, B., Olu, D.,

Spadafora, R., Vicaire, R., Wang, Y., Wlerzbowski, J., Gibson, R.,

Jiwani, N., Caruso, A., Bush, D. and Reeve, J.N.

Gomplete genome sequence of Methanobacterium thermoautotrophicum

deltaH: functional analysis and comparative genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101. .1873
//gene="WHH171"
/note="Function Code:5.01 - L-Amino Acid Metabolism,
Alanine-aspartate and glutamate metabolism; similar to,
gp_new:GI:e316045:g2104357, p()=1.7E-126, pid=45%*
/codon_start=1
//transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="synonym: Methanobacterium thermoautotrophicum str
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Methanothermobacter thermautotrophicus
Delta H"
                                                                                                                                                                                                                                                                                                                                                                                                Methanothermobacter thermautotrophicus str. Delta H. Methanothermobacter thermautotrophicus str. Delta H
                                                                                                       2332 CACCAGCACCGAGGCCGCCGGTAGGC 2358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YHVSVERGLDPDKPKNLAKCVTVE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /strain="Delta H"
/db_xref="taxon:187420"
/clone="MTH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="MTH172"
complement(1927, 2925)
/gene="MTH172"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(1927. .2925)
                                                                             494 GACCACCACACTGGCAATCCGGTAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101. .1873
/gene="MTH171"
101. 107.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 11142)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   deltaH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98037514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9371463
                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
PUBMED
                                                                                                                                                                                                      RESULT 40
AE000805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATÜRES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                            셤
                                                                             à
                                                                                                                         셤
                                                                                                                                                /product="acyl carrier protein phosphodiesterase"
/protein_id="AAG06611.1"
/db_xref="G1:9949344"
//translation="MSRVLV!ESSARQRGSVSRLLTAEFISHWKIAHPADRFQVRDLA
REPLPHLDELLIGGAMTPCCGGHSAARRFALERSNRLTEELRWADVIVLAAPMYNFAIP
SSLKSWFDHVLRAGLTFRYAEQGPEGILLQGKRAFVLTARGGIVAGGGLDHQEPYLRQV
IGFVGIHDVTFIHAEGMNMGPEFREKGLARARRERMRQALETDTSLCVPLPTLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QEQLGVPLLRIDGRRAVLTEAGEVILRRSRQLVRQAGQLEELAHHMEGGWEPFVRLVV
DAAVPTARTVRSLSARMPGRGCRVLLREEVLSGVEEALIQGAADLALSGLIPGHLG
ADLSVVEFVAVAHPDHPLHRCLRELTHQDLETQMQVVIRDSGRLQPRDHGWLGABÇRW
TVGSLATPATPVGROLJEFAHLPRHITERELOSGQLKPLPLSGGGGVRQSRFYLTRREK
PLGPASQILMEMLKSFANVPLNAPFAAPEPAAE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MKRiCCFALSLLPLSAFAYPIEVDPQLNGTEVSYSTQDIGRDMG
AILLTNLGGQAAECTAVFRNGPETPKVRRGVIQPGQNSNFTAQFGRDIIKLRIKLTCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MPDFQHRDCTLVYDDHPGPTERAPVLLLHGLGSSARDWEYQLPA
LLGRYRLLVPDLRGHGRSGKPRGGYSMAGFAEDCAALLDRLGCGPVHLVGISMGGMIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FQLACDRPDLLRSLTIVNSTPEVIPRKPREHLEVAKRKLLSRLLSLRTIGRALGRLLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PKAEQAGLREKIEARWAENDKRAYLASLDAIIGWGVQERLAEIACPTLVISADRDYTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    translation="MKAPRVTLDQWRTLQAVVDHGGFAQAAEALHRSQSSISYTVARM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VSLKQAYCERIADARLVVVEDSRHATPMDQPEIFNTTLLGFLADIDKTKEQPCSNVS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/product="peptidy1-proly1 cis-trans isomerase A"
/protein_id="AAG06615.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 11884;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="probable transcriptional regulator"
/protein_id="AAG06613.1"
/db_xref="GI:9949346"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /protein_id="AAG06612.1"
/db_xref="G1:9949345"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 46.2; DB 1
Pred. No. 0.0083;
0; Mismatches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'product-"probable hydrolase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein_id-"AAG06614.1"
                                                   complement(6206. .6847)
/gene="acpD"
                                                                                                                                                                                                                                                                                                                                                                      complement(6994. .7311)
/gene="PA3224"
                                                                                                                                                                                                                                                                                                                        complement(6994. .7311)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                db_xref="GI:9949347"
                                                                                                                              /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8447. .9274
/gene="PA3226"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3447. .9274
/gene="PA3226"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               note="PA3227"
256. .9819
                                 /note="PA3223"
                                                                                                       codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'gene="PA3225"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            511. .8440
gene="PA3225"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 3.9%;
Best Local Similarity 57.1%;
Matches 84; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9256. .9819
/gene="ppiA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'gene="ppiA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           511. .8440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                        CDS
```

CDS

2212 CCCGGTCACGCCCTGCTGCAATACATCCAGCGCCCCGGCACGGCGAAGGCCGCCACCGG 2271

ö q δ

434 CACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCAT 493

gene CDS

```
TDASSVTVDMVEISAGTMATALIVPSPNPAHKIVKGAYEDFILSEGILSIKTSPPAPS
GIELKVHCGDARAVVPILERRYYDAIFIDAFSPRVABELYTVTEISILAGVIKKRGVL
ATTSAAPRRAALIEAGFHVGGPPVERSGGTLASMDPRWYKPLDMRDERNIALSD
AGIPYRDPELSADAILEHGRRAVERNSARGYTRISSAVKTPLYLGSEQVEGRTGRRVR
RNLSRIGIDDPSGPEALYIICPQMDECICGCGEDRPASSRDRVISMRRRAMDIVNLRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Function Code:10.07 - Metabolism of Macromolecules, Aminoacyl LRNA synthetases and tRNA modification; similar to, pir:LN:D64354 AC:D64354, p()=1.4E-121, pid=37% /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Function Code:14.01 - Unknown, Conserved protein; similar to, pir:LN:F64383 AC:F64383, p()=1.4E-41, pid=278" /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MALTPRGDVLRTVMDYLEIESRDSVDRRRDLWRSISDKFIRTAD
GSYTLKSEAGEAMHTRVGALTEAIEKFVKPTVSGIKDDLRVLDLCSGLGYNTAALLEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HLKRVKEHLGERLALVAPSRRPYSSSLPARIGGFSSLRPQSGGPWRVVVDLPPGIIP
ELEDOYYPHAGSDAPGIMDLDGEEFREGIVRDLMDGDAIVDDALCSELGIELPYKYMG
EVETTVDDLDKVRWYADYQFGMGAGELLFTDDVRI BERSRNTGRIRHIY AGDELLCTMR
ASDCLLVLGABGAVRLHKGTDYPAMRVAVNEBSEPFARKGKSVFAKFIIDCDNNIRAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PALMPVIHPGKQTIDVKGPGAEIVITNAYIIYRNPELRERALSDGVHRLIDFDGPIMT
DSGSFQLSEYGDIEVENPEIIRFQDEIGTDIGTSLDIPTPPGVSHRRAIEEVEVTLER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ARESIEYRERMMLNAVVQGSTHPDLRRYCASRLAELPVELHPIGAVVPLMESYRYREL
VDAVLSSVSELPPSRPRHLMGAGHPMLFALAVSMGCDLFDSAAYILYAEDDRLLSTEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3129 ACCAGGAAACCGTTTTCACCGTCATCTATGACCTCAACAACTCCACCGGACCTGTAGGCC 3188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYKLENLQEMPCSCSVCTDYTPSELMGMDREERRNLIAEHNLHVSFAEIRKVRQAIHD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GNIMELVEERCRAHPRILEGYRRMSEYLDLIEKFEPRSKRSAFFYTGPESLGRVEVHR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation-"MISLISRGNTLLMTLWEDFWFEIKSKDGLGRTGILKTEHGTVRT
                                                                                                                                                                                                                                       /note="68 bp direct repeat includes part of MTH174 (sensory transduction histidine kinase - paralog.fam. 1); 87% ID to interval 384764"
                                                                                                                                                                                                                                                                                                                                 6020. 6101
Anote-WB2 bp Inverted repeat includes part of MTH174
(sensory transduction histidine kinase - paralog.fam. 1);
79% ID to interval 3058"
                                                                                                           of MTH174 paralog.fam. 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="82 bp inverted repeat includes part of MTH174 (Sensory transduction histidine kinase - paralog.fam. 1); 79% ID to interval 3057" complement(6020..6082)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="63 bp direct repeat includes part of MTH174 (sensory transduction histidine kinase - paralog.fam. 1); 86% ID to interval 554696"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - paralog.fam. 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 11142;
                                                                                                    /note="72 bp direct repeat includes part
Sasmoory transduction histidine kinase-
86% ID to interval 898474"
complement(6015. .6082)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
/product="tRNA-guanine transglycosylase"
/protein_id="AAB84682.1"
/protein_id="G1:2621219"
          (sensory transduction histidine kinase 86% ID to interval 4086" complement(6011. .6082)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 46; DB 1;
Pred. No. 0.0095;
0; Mismatches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="conserved protein"
/protein_id="AAB84681.1"
/db_xref="GI:2621218"
                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(6020. .6101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="MTH176"
8114. 10111
/gene="MTH176"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6749. .7945
/gene="MTH175"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6749. .7945
/gene="MTH175"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LADKAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                         repeat_region
                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Simi
Matches 85;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                       PDFIENLILAAGDDERVGSVQARMINGONRKLIDSAGLEYSLWGLGFNRGAYEVENF
NERARILGCCAGACLYRREALEDVEVDAEYFDEDFPAYYEDFDLALRLRSAGNDSLYA
PDAYVYHYKGGTNPFISDFTVYHNWRNYTWTFIKNMPADLLLMCLPLFVLTFIIQVLL
NIKROKLILLRAKYDARRGLGRVIRKRRALKRVPESEIKEYLTWRWSVKVPSFDEDF
COMPLEMENT (2945. .4093)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SSRGSDRTQAHYLLTGLTLPVIAGVITDLVLEAAGMAYPSLTDPSAAIGYSTTAYGW
RFRLPTLSPLNAAMDIVRNMYTFLTTDLGLNIHYVNPATERLTGRRAAEFSGRKYTE
VLRFDELSTGSTMESRLRGKDEWIPYTVSAGHYHGSGGEHLGLLFTGSDMRFTLEMEE
KLRREDRLVLLTEHWADGLGFFDRDFWTRYLSPSVKTITGYDHEMLTGMSALDFMDY
LHPDDTBEVKKLILTFRGEGHRATFR.RRPDGMYRWVEYYDRFTRTDGDTBGYYFGLRD
THEHKLAEEALIVSKEKFRELFRNMRSGITAVESOGGKFRVKSMNPAAERMEGVSCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MCPMRILIVSDFFVPHYNGGGERRYFETARRLVERGHVVDVISM
GIHGVGEYEEVSGVRVHHLGPRIRKPPLRGPLDFIRFWAAAFRWVMTHDYDIIDAQTY
APLLPAFLASRIHGTPMVATIHDVSSAHGDQMLQSSKTATILERVLMRLPYDGVITVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RSTASALTELHGRNPDGIHIIPNGVDPELIDSVTPATGNYIIFVGRLAPHKHVDHLIE
VFSKLVIDFPDLRLEIIGDGVERARLKAMVDECGIRDSVTFHHNLSYPEVISRIRGAR
VLVLPSTREGFGMVLAEAGACGVPAVAYRSGGVVEVIDDGENGFLVFPCDKEALHDKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IQGMDLQEALPEIWNSPIRRALQEIRETGEAIHCPEVECGEGWFDVHLHQLSTGEVVI
TCDITLEKOYYEDELAASLERERALLESHYHHWYNRPVISSIINLQLDDAEDPAPLR
DLGSRIQSMALVHELLYESEDLTSIDMGRY TERLISSIVNSHHNGEIEVEVAVGDITL
PLETAIPLGIIINELVYNSFKHAFTSGGMISVELEEHGGEFTLTITDNVYGLPPDFII
                                                                                                                                                                                                                                                                                                SVDFIKSNFSEYLGDRIILIENHENLGFAASNNQGIRIALDDPQCRYVVCLNNDTEVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MNPMAIISITAFVVALVSGVYIFVKNPESRFNRALLLFSALIAY
LSLTDFGLYISESYMMADFWVRMGFLWPIVVPVILHMVLLFTGRRPTMPLLAVIYAPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VVIAALELTTDLITAGPTMTSWGWTFSAAENSLPYQISNIWGFIIASVAIILVALHWR
                                                                                                                                                                                                                                                              /translation="MPETYIITPNLNGVSFLEVYFRSLLRQTYEDFRVVFIDNGSSDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Function Code:8.02 - Metabolism of Complex Lipids,
Inositol phosphate metabolism ; similar to, pir:LN:F64500
AC:F64500, p()=9.6E-29, pid=27%"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="72 bp direct repeat includes part of MTH174 (sensory transduction histidine kinase - paralog fam. 1); 83% ID to interval 400218"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(6010..6094)
Anote-"85 bp direct repeat includes part of WTH174
(sensory transduction histidine kinase - paralog.fam. 1);
81% ID to interval 228380"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1);
/note="Function Code:14.01 - Unknown, Conserved protein; similar to, gp:GI:g1666509 LN:LIUG1226, p()=8.6E-16,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6011. .6089
/note="79 bp inverted repeat includes part of MTH174
(sensory transduction histidine kinase – paralog.fam.
86% ID to interval 4087"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(6011. .6089)
/note="79 bp inverted repeat includes part of WTH174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Function Code:12.12 - Cell Processes, Broad regulatory functions; similar to, gp:GI:g1652472 LN:D90905, p()=1.1E-36, pid=17%"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KLLISDDELRDRMGSQGRKKVEEEFIWDRVVDEVERTYSFIIARKNTP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product_"sensory transduction histidine kinase"
/protein_id="AaAB4680.1"
/db_xrefe="GI:2621217"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
/product="LPS biosynthesis RfbU related protein"
/protein_id="AABB4679.1"
/db_xref="GI:2621216"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EDSDSLGLRLVAGLVDQIDGTLEVSGEDGTRFRLTFGVVPYRRV"
                                                                                                                                                             /product="conserved protein"
/protein_id="AAB84678.1"
/db_xref="GI:2621215"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(2945. .4093)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(6003. .6074)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                               /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4263. .6620
/gene="MTH174"
4263. .6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1263. .6620
/gene="MTH174"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="MTH173"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
```

CDS

ö

g

à

Q

ð

```
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                    Pseudomonas aeruginosa serotype 013 putative O-antigen biosynthesis gene cluster, partial sequence.
AR498404 AC104723
AR498404.1 GI:20559835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /protein_id="aam27609.1"
| Debaref="agn:20559937"
| Aranslation="MREBLISTYTHQGQLSAKDVELAIKTMLEQMSQALATGDRIE
| IRGFGSFSLHYRAPRVGRNPKTGESVRLDGKFVPHFKPGKELRDRVNBEE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Protein_id="AAM27610.1"
/db_xref="GI:20559838"
/translation="MVALTVIIFVLENQSGVNLSFLGWRTPEGPLSLFVSLAFVLGGL
                     426 ATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCC 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Clases 1 to 13401)
Raymond,C.K., Sims, B.H., Kas,A., Spencer,D.H., Kutyavin,T.V., Raymond,C.K., Sims,B.H., Kas,A., Spencer,D.H., Kutyavin,T.V., Ivey,R.G., Zhou,Y., Kaul,R., Clendinning,J.B. and Olson,M.V. Direct submission
Submitted (04-APR-2002) Genome Center, University of Washington, Box 352145, Seattle, WA 98105-2145, USA
On May 13, 2002 this sequence version replaced g1:17975252.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1167, :2216
/note="ORF_4; wzz; similar to chain length determinant
                                                                                                                                                                                                                                                                                                                                                                             Pseudomonas aeruginosa
Bacteria; Proteobacteria; gamma subdivision; Pseudomonadaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 13401)

Raymond, C.K., Sims, E.H., Kas, A., Spencer, D.H., Kutyavin, T.V.

Ivey, R.G., Zhou, Y., Kaul, R., Clendenning, J.B. and Olson, M.V.

Genetic variation at the O-antigen biosynthetic locus in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein_id="AAM27608.1"
'db_xref="G1:20559836"
'translation="EKDAMKELRKQEVESAGPTTIGDLIRAQMENQG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="ORF_1; C-terminal coding region of rpsA"

    13401
    Organism="Pseudomonas aeruginosa"
/serotype="013"
    /db_xref="taxon:287"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="ORF_3; hypothetical orfA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pseudomonas aeruginosa
J. Bacteriol. 184 (13), 3614-3622 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGVLSGMWLRLIGSVSKGHLPVRREAMK
                                                                                                 3249 GATGGAAGGACAACCTGGCCCCCTG 3278
                                                                                  515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/trans1_table=11
/product="Wzz"
/protein_id="AAM27611.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241. .525
/note="ORF_2; himD/ihfB"
                                                                                GAAGGCATGACCACCACTGGCAATCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'product="RpsA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'product="HimD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'codon_start=1
                                                                                                                                                                                                                                                                                                                                                            aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        trans)
                                                                                                                                                                                                                                                                                                                                                                                                                         Pseudomonas.
                                                                                                                                                                                                                                                                                                                                                            Pseudomonas
                                                                              486
                                                                                                                                                                                      RESULT 41
AF498404/c
                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                         SOURCE
```

```
RNFFREVYLPSLSENERSGSKDRLYSNLSEEMEIQRPSKDERERYTVIFEKHDFGQAA
DWGRRYIKLAAEGSMKEMQDAVQREFEVKSRNIQQQIDILRDAAKARREDRINRLKEA
YQIAESLKLENPPLIGGQMDQQLSSIMEGALMYMRGTKALRAEIRALEERTSDDPFIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EIIIAGRRINDGMGAYVVSQLVKAMIRKRIHVDGARYLVMGITFKENCPDLRWYKVVD
IVRELAEYNIAVDVYDPWVSVEEAQHEYGLTPISAPVEGNYDAVVLAVAHNEFKELGA
DKIRAFGKLESVIYDLKFILDKSDSDLRL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="AAM27613.1"
/protein_id="AAM27613.1"
/db_xref="G1:20559841"
/translation="MNAYAKALSRLETTTSSWLVTGVAGFIGSNLLELLLKFNQKVVG
LDDFSTGHMYNLDEVRGLVGEERWARFKLIQGPIRDIGDFRAPEGSVYCHQAALGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VPRSIADPITTNSVNISGFLNILVASKEAGVKSLTYAASSSTYGDHFGLPRVEEVIGR
LEPPPAVRYKVNELYADVFSRKYGFNILIGLRYFWFGKRODDNAAYAPTRWISAMI
KGEPVY INGDGETSRDFCFTINVIKANLLAAFCETEERKNOYVNVAGGRTILGQLFD
SLKVELSRNGINYEQGPIYREFRAGDVRHSQAEIKKAQAYLGYNPEYDIQAGIABAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LIGYAGILDLGIGRAVTQKLSSIRGSDEEMNSYTIMSTAIRITAIVGGLGFSLIIIFG
LLGGGEFFSHKDVSSLELEFSVLLLAFALPLQAISATYRGVNEAYLNFKGINLLRIFL
GATNFGGPFLVSFYAKDLHYLVTTLVLSRALAFFIFRRLAHGVLKETLVBRSCKYDRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QAVELFREGGWVTVSSIINPELVQSDRFFIGVLLSAAAVTSYVIPYEITIQSMILVGA
VSTVAFPSISNLIRTSFAEALECFNKWLLRVLLIMGGGMLCLAFLLPFILKLWYGDYI
GDDSISVGRILCLGVFFNALGAMFYSFLHANAKVKETAILHSIELPIFILLIILIPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GVGLVWSIYGELRGNAGALQVLFVWVVPPVLEVLLAVSYRGQSBALGKLFFYAALLIA
VLDIFFVFGNYLFSYNPVYESMAAMYGDAAVVDNAGRYIKFTLPNVSSLIFLIPYVVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YLLCRKFSLSGLFLLALLLUAFVSGRRALLLVAFTAPFLAYFLTMGADRFQWKVISR
VLVETVEMERERYGFELMKGYZQOP
FGMGAGIADY INSEMPWY PELYVSLYGYGYGLLGFLFYALGYLFLLYFLXTYRR
GRRSFEFCYLSGMLAFLMATATNPYLAKFDYWWVIFIPVALLNYSGRSON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="AAM27616.1"
/db_xref="G1:20559844"
/translation="MESPIIDVVVVNWNAGLQLRACVDSIFKNSSGLIRKVIVIDNGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
/protein_id="AAM27612.1"
/protein_id="To 1259840"
/protein_id="To 1259840"
/translation="MIKAAVGLGYVGLPLAVEFGKKRSVTGFDINHSRIRDLQKGY
DSTLEVEKEELESAVHLKFTSTLSELQECNFFIVTVPTPIDEHKQPDLTPLVKASESI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AKVLKKNDIVVYESTVYPGATEEVCVPVLERESGLRFNSDFFVGYSPERINPGDKEHR
VSTIKKVTSGSTPEVVEIVDSLYREIITAGTHKAESIKVAEAAKVIENTQRDLNIALI
/translation="MTEETFFQRVAKNEEFDLIGLLRGLWAEKWLIACITILTTSLVG
TYAFLSKPVYEARIAVLPPSWSSIAGFNLGRAENGLTTFSVNDVYSVFLRNLLAEETR
                                                                                                                                                                                                                                                                                                                   ALRNIQEKQAMYSTLKLDVNKVAVFRQDGVAEVPDDPVRPKKGILLVLGALSGLVWGV
MIAFIVWAVRRSRAK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MVFPTALIGIKFILLILALLFTLISSLARADLNLYVLLAGLFYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NELAIIFNKLEIDTESVLQAAGTKWNFLPFRPGLVGGHCIGVDPYYLTHKAQSIGYHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="ORF_8; similar to Sodium/hydrogen exchanger family; potential multiple membrane spanning domains."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MNPKNIFWNLLGLGLPLIIAALTVPHLIATVGVERFGFLALSWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4665. .5954
/note="ORF_7; similar to Polysaccharide biosynthesis
protein; potential multiple membrane spanning domains."
                                                                                                                                                                                                                                                                                                                                                                                        2303. .3568 // Antional of the control of the contr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7157. .8092
/note="ORF_9; similar to Glycosyl transferase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3578. .4603
/note="ORF_6; similar to NAD dependent
epimerase/dehydratase family"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HGIVGAAVAWSLRTLVDTIVLAVLSYFSGWRVKFANC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAM27614.1"
/db_xref="G1:20559842"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AAM27615.1"
/db_xref="G1:20559843"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
```

53

10224 GCCACTGCGTCACGAACTGGCACCAGCAGGCCGGTTCTATCCGCTTCGATAGCGTCCGG 10165

GCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGG

345

å

셤

g ò

ò

404

464

10164 CAACCCGGCACATCTGTCGTCACGACTACGCGACGCCAGGCAGCCACACCAGGACC 10105

465 ATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCG

405 ATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACC

```
/protein_id=_nam27617.1*
/db_xref=="G1:20559845"
/tanslation="MKILLLSKSPRETRILGYIDYLESKGGRVDVRSFFDDGY
LSGLYSSGRRSFYNLKSYISRFYLLFTVCRYDLIWTEKEIFPYFFPSYAERFLRFFGK
LSGLYSSGRRSFYNLKSYISRFYLLFTVCRYDLIWTEKEIFPYFFPSYAERFLRFFGK
LSGLYSSGRRSFYNDKSSCRKINSKFHGKKIDSYMRHSSCYJAGNDYLAERARYAGSSR
VEIIFTVIDLERYEVRDESCSKRIVIGWIGSPSTGKYLLDIAPEDREKKCGYKLLIQYR
GATPELSSYFSGGYVTOVKAWREEDEVGYIRGWIGSTGARYAGSSKLIQYR
RKISTGQVQSRLHQTFFVLS*
RKISTGQVQSRLHQTFFVLS*
9611. 10378
//note="ORF-11; similar to Glycosyl transferases group 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /traislation-**MAKGSKASVFRSGIAMLYRRALGKKRLRVIFQNPDDRDALIGLG
AITYEKSVLIRGSGYDLSLCHPAFESEPGTPVYTLARLLRDKGVVEFVEAANILRQRG
ASHFQLVPQDLDFGNPSSIEEFDLERWRSEGTPGCLGYRQDIASVFAHSHIVVLPSYR
EGLEKVLVERAAAGGRVYTTDVPGCRDAIERDRTGLLVPVTDAYAAADAIGLUFKVYTTDVFGRDAIERDRTGLLVPVTDAYAAADAIGLUFKKKGAAGFTLAERDFAIESIVQQHLDIYRALGSGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VRRFIYLSSIKVNGEGSEPGQPYFADELPNPVDPYGYSKLEARRALLDLAAFFGLEVV
IIRPVLVYGFGVKANVQTWARMLKRGVPLPLGAIHNRRSLVALDNLTDLLAAFFGLEVV
ANNOYELVYGFGVKANVQTWARMLKRGVPLPLGAIHNRRSLVALDNLTDLLAACTDHPA
ANNOYELVSGEBLSTTDLLRRMGNARTPARLYPVPASWIGLVAKTLNKQAFAQRLC
GSLQVDIERKNRRMLGWTPPVGVDBALEKTARYFLDHQ"

11334 . 12374
/note-RORF_13; similar to Glycosyl transferase group 4;
potential multiple membrane spanning domains."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LIGHFAGACHLLYWLGGLPALVFFGFWYDLGWYGHIGAVFYLVWMLNIYNFWGTDGT
SYSBAVCYGTGAVLLYWYSGYGSNNASQGTWLSALLASAVTGFLFWNFPPARIFMGDA
GSGFLGTILAGGLSLQAAWYSSOLFWGWLILLGVFVYDATLTLRRLLRGDKYYEAHRS
HAYQYASRYYGRHLFYYLAVGCINLVWLLPLALFVASGRIDGMLALLIGYLPVALAL
RFKAGTLEPRVA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAM27621.1"
/db_xref="G1:20559849"
/translation="MLDNLRVRLLGLPRQKRILQVATDIALVWLSLWLAFLVRLGTE
DMISPFGGHAWLFIAAPLVAIPLFIRFGMYRAVMRYLGNDALIAIARAVTISALVLSL
                                                                   DWDHLSSRPVDHVIGAFYFVRRHVFKLVGGFDERFFVYLEDLDLSYRISCSGWSSFYL
STAOAFHAGGGASRQIKARRLFYSLRSRLIYIFKNLPTVSAFLILLSSLFFEPVIRSM
FSWVKLSFPALRETWSAYLMLYRWLPKWIFFNATR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation-*MTGATGFVGAALVESFWSSEKYRVWAGYRRESSPWPEGVTPLFL
GELGSSVAWETESLIDTVIHCAARVHVMSETVSDPLAEFRKANVQGTLDLARQAASLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="aaM27620.1"
#d_xxef="cf::20559848"
/translation="MNHIMILADAQGLSLLITAGLRRYAIARSLMDVPNARSSHQVP
TPRGGGVAIVLSFLLAVLLAAFLGMMDMRLAIGILGAGVGTALLGFLDDHGHIAARWR
NDNSCALLGERENLEVVLTGENLGFATACNLGASKGKAEY ILFLNPDAELYEET IGSV
VRFMNRSENSKVGVCGVQLIDEQGQVSRSCARFPSSARMLMHTMGVDRIFPALGYAMT
                                                                                                                                                                           8098. .9168
/note="ORE_10; similar to Glycosyl transferases group 1"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12559. ,>13401
/note="ORF_14; similar to N terminal coding region
Polysaccharide biosynthesis protein WpbM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="ORF_12; similar to NAD dependent epimerase/dehydratase family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
/protein_id="AAM27618.1"
/db_xref="GI:20559846"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein_id="AAM27619.1"
/db_xref="G1:20559847"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10396. .11337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 49.69
Matches 118; Conservative
                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
```

10284 GCCCCCATCTTCTTCCGCAGCTCCGGAGATTCGACAAGACGCTGAATGGCGTCAGCCAAC 10225

GCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCCCGGTCCAT 344

285

a ò

Pred. No. 0.0099; 0; Mismatches 120; Indels

DB 1; 0.0099;

Score 46;

Gaps

ö

Length 13401;

```
TKLRORGTFFPDRRPAILGCDGAGVVVAVGAAVRRFRYGDEVYFCYGGLGDRGGCYAE
YAVVPEAAVAHKPKTLSFIQAAALPLAVITAMEALGDRGAVPPLNVLSTAKTVLIHAG
AGGVGHLAAQLARRAGAQVATTISSPAKAQFTEALGATLAINYTTTDMVQAVLDWTGG
KGVDLALDTVGGATFAETFKAVRPYGTLATLLEPAVDTPWKIARQRNILIQLTLMITP
QLLGLREALAHGGQILEQVATLVDRGELRVVVDKTFPLGAAADAHRYLSQRLVQGKVV
LIP
                                                                                                                                         AP005369 300600 bp DNA Linear BCT 17-AUG-2002
Thermosynechococcus elongatus BP-1 DNA, complete genome, section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'translation-"MKAVAIAEFGEPDVLVLRQVPEPQIEAADEVKIQLRAASVNPID
                                                                                                                                                                                                                                                                                                                                                                                                   Sasamoto, S.,
Direct Submission
Submitted (05-JUN-2002) Takakazu Kaneko, Kazusa DNA Research
Institute, The First Laboratory for Plant Gene Research; 2-6-7
Razusa-kamatari, Kisarazu, Chiba 292-0812, Japan
(E-mail:kaneko@kazusa.or.jp,
URL:http://www.kazusa.or.jp/cyano/Thermo/,
Tel:81-438-52-3935(ex.2338), Fax:81-438-52-3934)
Location/Qualifiers
1. 300600
/organism="Thermosynechococcus elongatus BP-1"
                                                                                                                                                                                                                                                                                                                                                                                                                Watamabe, A. Iriquchi, M. Kawashima, K., Kimura, T., Kishida, Y., Kiyokawa, C., Kohara, M., Matsumoto, M., Matsumo, A., Nakazaki, N., Shimpo, S., Sugimoto, M., Takeuchi, C., Yamada, M. and Tabata, S. Complete genome structure of the thermophilic cyanobacterium Thermosynechococcus elongatus BP-1
                                                                                                                                                                                                                                                                                              Thermosynechococcus elongatus BP-1 (strain:BP-1) DNA.
Thermosynechococcus elongatus BP-1
Bacteria; Cyanobacteria; Chroococcales; Thermosynechococcus.
                                                                                                                                                                                                                                                                                                                                                                                                Sato, S., Ikeuchi, M., Katoh, H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/product="serine proteinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note-"ORF_ID:tlr0001
probable oxidoreductase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="BAC07554.1"
/db_xref="GI:22293722"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:197221"
/note="BP-1"
129. .1142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(1351. .2331)
/gene="tl10002"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(1351, .2331)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note-"ORF_ID:t110002"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="tlr0001"
129. .1142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA Res. (2002) In press
2 (bases 1 to 300600)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="tlr0001"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /strain-"BP-1"
                                                                                                                                                                                                                                                                                                                                                                                              Nakamura, Y., Kaneko, T.,
                                                                                                                                                                                                                                            AP005369.1 GI:22293721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                     AP005369 BA000039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kanèko, T
                                                                                             RESULT 42
AP005369/c
                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                            VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                    g
```

```
FODDOVSMOOTPOHERPIDDYBISONICSTERMHOEDMEYFGFTOPGROPEITATORS
YVVRRAALEALGGYYTRCVVEDFOTGTKMOTAGYRLVYLNETISMGESPRRFODYLEG
RINGAONOTYPCHENPURSKLSWPORSCHIEJLLHNINPPIRTCFLIGPFLSLM
GISLTVATLESEYLFYALDYTLLAIAFPSWAPERYFSTHGEVYEVFRAFERPGWOLIKI
IRNPFGKIGSTYTRKGTLSNRKRLNIRYTWPLVAFILAVSVGVFTRRFGGYWHHIWPPM
FERSGLEGWALMAYTLWAFTALAYLSSIDOPSRRGSDFFVCTVCRFGLGGOTWHIWPPM
TRNDFGKIGSTVATLGREAQRFTALAYLSSIDOPSRRGSDFFVCTVCRFGLGGOTYRGY
TRNDFGKALLLAGGRFTEAQRFTYGTLFLAGOFFFVTAAVVRSRFEEBQCCLYLRF
LEVSDEAQRGLIVQLIYGGLFWWHKFRAANGLDAFWPMLIRLFDFRSLFSLYSNH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /protein_id="BAC07561.1"
/db_xref="G1:22293729"
/db_xref="G1:22293729"
/db_xref="G1:22293729"
/db_xref="G1:22293729"
/db_xref="G1:22293729"
/db_xref="G1:22293729"
/db_xref="G1:22293729"
/db_xref="G1:22293729"
/db_xref="G1:22293729"
/db_xref="G1:2223729"
/db_xref="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /traislation="Mataetaplaelvhytgdrirliqelktddgerdsltaylktu
RGIOSYHVNTLASITIEYHEGITPLQLLAAIOFWGEVOIIGGGNGCLQULTRAFDL
EPERGNKLTAMGGFLMGGYLGDILGGWGGTAGGLLMGPGGAVMGVQVGFFVGGVIG
ARLGMEATEQNIQLGFTALEETPERLAKALEHSGDKIGGAAGELAGGLAGQVVLGPY
GETLGRVVGNNVGSQLGEDLGRQLAEPSPEGPPPSLHFFLEWWVKTSQTFAKETLLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPERIEAVIARLDLIQWRDRQCGTYSGGIRKRFDLAAGLLHQPQVLVLDEPTVGLDIE
SRQVIWDVLRDLKAQGLTIILTSHYLEEVDLLSDRLVILDKGRVIASGSPEELKANIG
GDRVTLRVREFTPRQEAQRAQALLSQLTCVKSALINANQGNSLNLVVTDVTVAIAAIK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MHELGNRRSFSSGHGNPPQSALVAVVARTPREGEISVKMLRESH
TELMTMTATVKVEHLRKSYGAITAVADVSLTAHQGEIFGVLGPNGSGKTTTLRCLCTL
SRPDAGLLEVCGFSVLHQPHLVRQKLGYVAQEVALDKIITGQEFLELQAALYHIPRAL
                                                                                                                                                    /translation="MSHEPPRPASPRQWVAPWWGFFVFSILLLFGVLLATTWRPTLF
PIDLVNPDQLRPLPDLLQMPEDELSVWWPLVLVGMVAIALNFIPSNNVSRLIIRFIVI
LFGCRYLVWRGWYILNDAHWLSFAASLGFYGLEVLSFFTYLLXFYQTAWLTTAWRSQQ
                                                                                                                                                                                                                                                                           ANAYQQAVLRGEYCPSVDIFIPTYNEPPYILRRTIVACQAIHYRNKSIYVLDDGRRSE
IADLCAHLGVNYLTRPTNEHRKAGNLNHALKHTTGELIAVFDADFIPFQNFLTRTVGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RALEEAGLPLFSLAQSRPSLDDVYLAATGQTLLDADLAAAAQRDSKQLKKEVMQR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 45.8; DB 1; Length 300600; Pred. No. 0.023;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9717. .10886
/gene="tir0010"
/note="tir0010"
/codom_start=1
/transl_table=11
/protein_abc_transporter ATP-binding protein"
/db_xref="GI:22293731"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TLGGIVARGILGPQAEAAGIRAGSRMSRHLDRQQSNTAAKEKKV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/protein_id="BAC07562.1"
/db_xref="GI:22293730"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(7667, .8746)
/gene="ycf81"
complement(7667, .8746)
/gene="ycf81"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(8796..9758)
/gene="tl10009"
complement(8796..9758)
/gene="tl10009"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="ORF_ID:tll0008
hypothetical protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note-"ORF_ID:tl10009
unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9717. .10886
/gene="tlr0010"
9717. .10886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/transl_table=11
/protein_id="BAC07556.1"
/db_xref="GI:2293724"
/translation="MAADVRQNHYFQNKARVDLMPSWVEYGPQAAEFPWDGDRPWRPN
GLSTAFARSHPLHP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MTDAVSALFQQQQQAFERGNYQQSITLLAQAVALAEGNTTQSGE
ISLMLVTAYSASAGDQEAAVSLCRQLQRHPDHQTRQESRRLLAILEAPQLKRRPEWCSE
IPDLSHLGDRAYTSPYRHSRKRPSAPTPKPQEPPPPATPLPNAFIWIALTGLGVATLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/protein_id="BAC07557.1"
/bortein_id="BAC07557.1"
/translation="MITVISYLEQPMTFDSFFGPVTLQPGRNENVDERRWRNCKTHNADIQALMKKGLIVVEELG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NPYTQEGYDIIIGPGTEAIAGEGMILTAGGIDAHIHFICPQQIATAIAAGITTMIGGG
TGPATGTNATTCTPGPWNIYRMLQAADAFPVNLGFLGKGNSSQPQGLIEQVQAGVVGL
KLHEDWGSTPNAIDTCLSVAEDYDIQVAIHTDTLNESGFVEDTIAAFKNRTIHAYHTE
                                                                                                                                                                                             PGNSGGPLLNAAGOVGVNTAVISOAGGLGFAIPINTAYGIAEQIITTGRAQHLYLGI
RWYPLTPELALQIREQQPNWTLNRTGGTLIIGVAPNSPAAKAGLQAGDWIAKVNDINQ
PTQOVQUSVVEGTKLGERITLEIERGDRRQTLRLKPEPMPPEWYPSAQPE"

Complement(2402. .2578)
/gene="ts10003"
/gene="ts10003"
/note="ORE_ID:ts10003"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGGGHAPDIIKLCGQANVLPSSTNPTRPYTVNTLDEHLDMLAVCHHLDPSIPEDVAF
AESRIRRETIAAEDILHDLGAFSIISSDSQAMGRVGESIIRTWQTAHKMKVQRGHLRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LVIKGGVIAYAOMGDANASIPTPOPVHMOPMFASYGGCRITTSVTFMSOAGIANNIPE
OLGLOKTVLPVGHIRQLRKADLKLNDYLPHIEVDPETYEVRADGELLICEPATVLPLA
ORYFLF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="mSyridrQTyaETyGPTVGDRLRLADTDLIIEIEHDYTHYGDEV
KFGGGKVIRDGMGQSPIANAEGAVDVVITNAVILDWWGVVKADVGIRDGKIYKIGKAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PORPGYDHDNFRARRYVAKYTINPAITHGIAEYVGSVEVGKIADLCLWKPAFFGVKPE
                                                                                                                           IFTPDGKIMTNAHVVEGASAVRVTLPDGRQYDGKVLGADSLTDVAVVQINAKNLPTVQ
                                                                                                                                                                LGNSDTLRPGEWAIAIGNPLGLSNTVTAGIISAMGRASSEIGAADKRVSFIQTDAAIN
                                                                                      /translation="MVAEAGPAVVSIDTLRLDRGSEDPFLAPFPVPDVPLRQGQGSGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="urease alpha subunit"
/protein_id="BAC07558.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="BAC07559.1"
/db_xref="G1:22293727"
/protein_id="BAC07555.1"
/db_xref="G1:22293723"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(5430..7640)
/gene="tl10007"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(5430. .7640)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="ORF_ID:tl10007"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note-"ORF_ID:tlr0005"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="GI:22293726"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'note="ORF_ID:tlr0006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hypothetical protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note-"ORF_ID:tsr0004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4538. .5032
/gene="tlr0006"
4538. .5032
/gene="tlr0006"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2577. .2762
/gene="tsr0004"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="tsr0004"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="urec"
2816. .4524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1816. .4534
Gene="ureC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2816. .4534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
```

CDS

```
225645 CGCGTGGCGTAGAGGGTGCAGGATGGAAGCCAGCGAAGATCACCCGGTCTGC 225586
                                                                                                                                                                                225765 CGCAAGGATTTCCGCCGGACCCGAGGGGCAGTCGGTGGAAACGACCGCCAGGCCGAAGGA 225706
                                                                                                                                                                                                                                                                                                                                                                                                                                             225825 CATGGCCCGGGCCAGCGCCGCCATCCCCTACCGGAACAGGCGGCCGAACGCCCCTC 225766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCT 01-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Blattner, F. R., Plunkett, G. III, Bloch, C.A., Perna, N.T., Burland, V., Riley, M., Collado-Vides, J., Glasner, J.D., Rode, C.K., Mayhew, G.F., Gregor, J., Davis, N.W., Kirkpatrick, H.A., Goeden, M.A., Rose, D.J., Mau, B. and Shao, Y.
                                                                                                                                       445
                                                                                                                                                                                                                                                                                                                                                                                                                       625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (13-OCT-1998) Laboratory of Genetics, University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA This sequence was determined by the E. coli Genome Project at the University of Wisconsin-Madison (Frederick R. Blattner, director). Supported by NIH grants HG00301 and HG01428 (from the Human Genome Project and NCHGR). The entire sequence was independently determined from E. coli K12 strain MG1655. Predicted open reading frames were determined using GeneMark software, kindly supplied by
                                                388
                                                                                                                                                                                                                                   505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
Submitted (16-Jahr-1997) Guy Plunkett III, Laboratory of Genetics,
University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA.
Email: ecoli@genetics.wisc.edu Phone: 608-262-2534 Fax:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genetics,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (02-SEP-1997) Guy Plunkett III, Laboratory of Genetics University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA. Email: ecoli@genetics.wisc.edu Phone: 608-262-2534 Fax:
                                              CAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTT
                                                                                                                                     389 CTGAATGA----CATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGAC
                                                                                                                                                                                                                                 446 TGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACACT
                                                                                                                                                                                                                                                                                                                           506 GGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                  566 CATTCCCAGGTGTTCTGTTGTGACGCAGACGTGCTTCGTATTCTTCACGCCCGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AE000469 10940 bp DNA linear BCT 01-DEC
Escherichia coli K12 MG1655 section 359 of 400 of the complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The complete genome sequence of Escherichia coli K-12 Science 277 (5331), 1453-1474 (1997)
  Indels
0; Mismatches 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AE000469.1 GI:1790385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bases 1 to 10940)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 10940)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4 (bases 1 to 10940)
Plunkett, G. III.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Escherichia coli K12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 10940)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Escherichia coli K12
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AE000469 U00096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          225525 CATCA 225521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Blattner, F. R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Blattner, F.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   608-263-7459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      608-263-7459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              626 CACCA 630
Matches 150;
                                              329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AE000469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                    ద
                                                                                                                                     ð
                                                                                                                                                                                셤
                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
Mark Borodovsky, Georgia Institute of Technology, Atlanta, GA, 3032 [e-mail: mark@amber.gatech.edu]. Open reading frames that have been correlated with genetic loci are being annotated with C site Nos. to unique ID nos. for the genes in the E. coli Genetic Stock Center (GGSC) database at Yale University, kindly supplied by Mary Berlyn. A public version of the database; is accessible (http://cgsc.blo.oogy.yale.edu]. Annotation of the genome is an ongoing task whose goal is to make the genome sequence more useful by correlating it with other data. Comments to the authors are appreciated. Updated information will be available at the E. coli Genome Project's World Wide Web site (http://www.genetics.wisc.edu). *** The E. coli K12 sequence and its annotations are periodically updated; this is version M54. No sequence changes. Annotation updates: updated gene identifications and products; all new functional assignments courtesy of Monica Riley; added promoters, protein binding sites, and repeated sequence described in reference 1. The unique numeric identifiers beginning with a lowercase 'b' assigned to each gene (protein or RNA-encoding) are now designated as gene synonyms instead of a gene name and a labels. This should allow them to be searched for in Entrez as gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /LTAIR 14 LOD-*MRELVQIIKNTROHLMTCVSHMIPFVVSGGILLAVSVHLYGKGA
VPDAVADPNIKKLFDIGVAGLTLMVPFLAAYIGYSIAERSALAPCAIGAWVGNSFGAG
FFGALLAGIIGGIVVHTLKRIPVHKVLRSVMPIFIIPIVGTLTAGIIWMGLGEPVGA
LINSLTOMLGGMOGSIVMLAVINGHALASVMPIFIIPITOMLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="GI:1790387"
/translation="MTKIIAVTACPSGVAHTYMAAEALESAAKAKGWEVKVETQGSIG
LENELTAEDVASADMVILTKDIGIKFEERFAGKTIVRVNISDAVKRADAIMSKIEAHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /function="enzyme; Degradation of small molecules: Carbon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             //transl_table=11
/product="PTS system, fructose-like enzyme II component"
/protein_id="AAC76931.1"
/db_xref="GI:1790386".
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Carbohydrates, organic acids, alcohols"
/note="0359; 100 pct identical amino acid sequence and
equal length to PTWC_ECOLI SW: P32672"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="0106; 100 pct identical amino acid sequence and equal length to PTWB_ECOLI SW: P32673"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note="factor Sigma70; predicted +1 start at 4140062"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  predicted promoter: -145"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="PTS system fructose-like IIB component 1"
/protein_id="AAC76932.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      function="transport; Transport of small molecules:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /bound_moiety="CRP predicted site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. .10940
/organism="Escherichia col1 K12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95. .114
/note="central position to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KSLARKNGSSTDEKEDDLDLDFEIN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            db_xref="taxon:83333"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /sub_strain="MG1655"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="b3949"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'note="b3950"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /strain="K12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="frwc"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="frwC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1392. .1712
/gene="frwB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1392. .1712
/gene="frwB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="frwB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .1625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         compounds"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
```

/note="factor Sigma70; predicted +1 start at 4141443"

us-09-674-277-2.rge

```
Continuation (20 of 28) of LMFLCHR32 from base 1900001 (AL499622 Leishmania major chr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94357 CGGCCAGTGCGGCCGGATCGTTGGGCGGCACCAGGTAGCCGGTGCGGCCGTTCAGCACGG 94416
                    /db_xref-"G1:1790390"
/translation-"MAYLVAVTACVSGVAHTYMAAERLEKLCLLEKWGVSIETQGALG
TENRLADEDIRRADVALLITDIELAGAERFEHCRYVQCSIYAFLREPQRVMSAVRKVL
                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGA 396
                                                                                                                                                                                                                                                                                              70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       397 CATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACCACTGGCAATCCGGT
                                                                                                                                                                                                                                                                                              11 TGGAAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAGTAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                8009 TAGCCTGGACTTCTGTGGAATGCATAGTAAGAACCTGTCTTGAAAAAATT 8059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS LMFLCHR32 Accession AL499622
                                                                                                                                                                                                                                                                                                                                                                           71 TGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGT 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 110000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                Length 10940;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       = - = =
                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                  Score 45.4; DB 1;
Pred. No. 0.015;
0; Mismatches 41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 45.4; DB 2;
Pred. No. 0.025;
0; Mismatches 101;
'protein_id-"AAC76935.1"
                                                                                                                                                         complement(5234. .6085)
/gene="yijo"
                                                                                                complement(5234. .6085)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2010000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2310000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2710000
2727709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1910000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2610000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   00001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        210000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   610000
                                                                                                                    /gene="yijo"
/note="b3954"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fragments
                                                                                                                                                                                                                    3.8%;
                                                                               SAPQQTHLILE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7. Match 3.8%;
Local Similarity 51.2%;
hes 106; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         =
=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2600001
2700001
                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               900001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   500001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1400001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   500001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          700001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               800001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            200001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Begin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28
                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 70; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   split into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fragment Name
LMFLCHR32_00
LMFLCHR32_01
LMFLCHR32_03
LMFLCHR32_04
LMFLCHR32_05
LMFLCHR32_05
LMFLCHR32_05
LMFLCHR32_07
LMFLCHR32_07
LMFLCHR32_09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IMFLCHR32_13
IMFLCHR32_14
IMFLCHR32_15
IMFLCHR32_16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LMFLCHR32_26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LMFLCHR32_10
LMFLCHR32_11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LMFLCHR32_18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LMFLCHR32_12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LMFLCHR32_19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LMFLCHR32_22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LMFLCHR32_23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LMFLCHR32_24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LMFLCHR32_2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 44
LMFLCHR32_19
WPCOMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LMF LCHR3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loca
Matches
                                                                                                      gene
                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation-"MYSSAGGRISCNVVETREDDVARIFNIORYSLNDGEGIRTVVFF
KGCPHICPWCANPESISGKIQTVRREAKCLHCAKCLRDADECPSGAFERIGRDISLDA
LEREWMKDDEFRTSGGGYTLAGGETVLAGAEFATRELQALLAWGVSCALETAGDAPAS
KLIPLAKLCDEVLFDLIKIMDATQARDVVKMNLPRYLENLRLLVSEGVNVIPRLPLIPG
FTLSRENMQOALDVLIPLNIRQIHLLPFHQYGEPKYRLLGKTWSMKEVPAPSSADVAT
MREMAERAGLQYTVGG"
                                                                                                                                                                                                                                                                                                                                                     KATAY ILEHYEISIRDEELIAGNRIYKPRAGIMSPENDPYMLIKELDOPPTRPODRFA
ISEEDRRIYREELPYWEKISMKDFINGOWIDEVKAATNIOTESINOTDKGGGHIIID
YRELINHGIGELVAOMOOLOQOPENHFYQAALLILERSOKHILRYABELAETMAANCT
DAORREELLITIAELSHNAOHPOPPWOAGOCLEWYNNIILOYESNASSLISLGFEDYN
LPFYQTSLIYOGEDAAFLKELLESLWYKONDIYLLKSTSSARYFAGFPTGYTALLGGLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENGRSAVIVLSFLCLDAYQSVQLPQPULGVRTNALIDTPFLMKTAETIRFGTGIPQIF
NDEVVVPAFLINRGYSLEDARDYSVVGCVELSIPGRTYGLHDIAMFULLKVMEICLHEN
EGNALITYEGLLEQIRALISHYITLMVPGSNICDIGHRDMAPVPLLSSFISDCLERGR
DITDGGARYNFSGYOGIGIALSDSLHALKGAVFEQORLSFDELLSVLKANFPFEGE
KVRARLINRFEKYGNDIDEVDNISAELLRHYCKEVEKYQNPRGGYFTPGSYTVSAHVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LGSVVGATPDCRFRGEQLADGGLSPMLGQDAQCPTAVLKSVSKLDNTLLSNGTLLNVK
FTPATLEGEAGLRKLADFLRAFTQLKLQHIQFNVVNADTLREAQQRPQDYAGLVVRVA
GYSAFFVELSKEIQDDIIRRTAHQL"
                                                                                                                                                                                                                                                                                                                                      /translation="MTNRISRLKTALFANTREISLERALLYTASHRQTEGEPVILRRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'function="enzyme; Degradation of small molecules: Carbon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3292. 3329
/note="REP (repetitive extragenic palindromic) element;
contains 1 REP sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100 pct identical to PFLC_ECOLI SW: P32675'
                                                                                                                                                           'function="enzyme; Energy metabolism, carbon: Anaerobic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="0113; 100 pct identical amino acid sequence and equal length to PTWX_ECOLI SW: P32676"
                                                                                                                                                                                              /note="0765; 100 pct identical amino acid sequence and equal length to PFLD_ECOLI SW: P32674"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /function="putative enzyme; Energy metabolism, carbon:
Anaerobic respiration"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="factor Sigma70; predicted +1 start at 4144712"
1906. .5247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="factor Sigma70; predicted +1 start at 4144578"
1864. .4894
                    factor Sigma70; predicted +1 start at 4141533"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="probable pyruvate formate lyase activating enzyme 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
/product="PTS system fructose-like IIB component 2"
                                                                                                                                                                                                                                                                         /product="formate acetyltransferase 2"
/protein_id="AAC76933.1"
/db_xref="G1:1790388"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AAC76934.1"
/db_xref="G1:1790389"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EC_number-"1.97.1.4"
                                                                                                                                      EC_number="2.3.1.54"
                                                                                                                                                                                                                                                         /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
                                                                                                                                                                                                                                        codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note="b3952"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4864. .4894
/gene="pflC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="b3953"
                                                                               note="b3951"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          730. .4760
gene="pflC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1026. .4904
/gene="pflc"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note-"o292;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        906. .5247
gene="frwD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                906. .5247
'gene="frwD"
                                                                                                                                                                               respiration"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4026. .4904
/gene="pflc"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           compounds
                      note="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 promoter
    promoter
                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                    CDS
```

å 셤

```
misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                  misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                         misc_feature
                                                       misc_feature
                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
94477 CCGGCGTGATGCCGAACGCTCGTACCATGGCGTGGTGACGAACACATCGGCCGCGCGTGT 94536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (03-SEP-1993) 608-263-7459
Submitted (03-SEP-1993) 608-263-7459
Submitted (03-SEP-1993) 608-263-7459
This sequence was determined as part of the E. coli Genome Project (Frederick R. Blattner, director) at the University of Misconsin-Madison. Supported by award H000301 from the NIH Human Genome Project. The entire sequence was independently determined from E. coli MG1655; overlaps and conflicts with other sequence determinations are annotated. The start of this entry overlaps the end of the entry ECOWW97 (119201) by 93 bp. NOTE: An update was submitted on 25-OCT-1993, reflecting a correction to the hemE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LTHRDMGPKSRYIGPEVPKEDLIWODPLPQPIYNPTEODIIDLKFAIADSGLSVSELV
SVAMASASTFRGGDKRGGANGARLALMPQRDWDVNAAAVRALPVLEKIQKESGKASLA
SIVJAGWVGVEKAASAAGLSIHVPPAPGRVDARQDQTDIEBELLEFIADFRNTRA
RLDVSTTESLLIDKAQQLILITAPPWTALGGRRYUGGRRYLGANDF
FVNLLLDMRYEWKATDESKELFEGRDRETGEVKFTASRADLVFGSNSVLRAVAEVYASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            //octe-This sequence comprises the following lambda clones: EC18-126, EC14-54, EC21-52, EC17-24, EC17-203, EC19-105, EC18-208, EC18-208, EC18-204, EC18-33, EC30-41, 
                                                                                                                                                                                                                                                                                                                                                                                                       BCT 17-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /standard_name="catalase HPI; catalase-peroxide; catalase"
/note="CG Site No. 14983"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Escherichia coli (sub_strain MG1655, strain K-12) (library: lambda)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'translation " "AITSGLEVVWTQTPTQWSNYFFENLFRYEWVQTRSPAGAIQFEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VDAPELIPDPFDPSKKRKPTMLVTDLTLRFDPEFEKISRRFLNDPQAFNEAFAKKWFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Analysis of the Escherichia coli genome. IV. DNA sequence of the region from 89.2 to 92.8 minutes
Nucleic Acids Res. 21 (23), 5408-5417 (1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="corresponds to M21516; ECOKATGA(1225. .2805)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 176195)
Blattner,F.R., Burland,V., Plunkett,G. III, Sofia,H.J. and
                                                                                                                                                                                                                                                                                                                                                                                              ECOUW89 176195 bp DNA linear BC
E. coli chromosomal region from 89.2 to 92.8 minutes.
U00006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          product="catalase hydroperoxidase I"
protein_id="AAC43048.1"
db_xref="GI:396289"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
1. .176195
/organism="Escherichia coli"
                                                                                                                                                                     94537 AGAACAGCCGCAGCTGGTCACGGCCGC 94563
                                                                                       517 AGACCGGTAACGCTGGGAAAAGGGCAC 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /EC_number="1.11.1.6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /sub_strain="MG1655"
/db_xref="taxon:562"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Escherichia coli
Bacteria; Proteobacteria;
Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /strain="K-12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 (bases 1 to 176195)
Blattner, F.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U00006.1 GI:409785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Daniels, D.L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          edneuce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                               RESULT 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                ECOUW89
```

```
/translation-"MPHIALLISKGAIMDRIIQSPGKYIQGADVINRLGEYLKPLXER
WLVVGDKFYLGFAQSTVEKSFKDAGILVVEIAFFGGESQNETDBLRGTAETAQCGAIL
GIGGGTLDTARALAHFWGVPAIAPTASTDAPCSALSVITTDBGEFDRYLLLDNNP
NWYIVDRY IVAQAPARLLAAGIGDALATWFERACSRSGATTWAGGKCTQALALAEL
CYNTLLEEGERAMLAAEQHVVTPALERVIEANTYLSGVGFESGGLAAAHAVHNGLTAI
BADHHYYRDEGRVAFGTLTQLVLENAPVEEIETVAALSRAVGLPITLAQLDIREDVPAK
MRIVARAACAEGETIHNMFGGATPDQVYAALLAVADQYGGRFLQEWE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SYIGAFDFTALRCIFGALVLFTVLLLRGRGMRPTPFKYTLATALLGTCGMVGTLANGY
VSGGAGKVALLSYTMPFWVYIFAALFLGERLRRGQYFAILIAAFGLFLVLQPWQLDFS
SMKSAMLAILSGSVSMGASATVARRLYSTRHPRVDLESTSWQMIYAALVMSVVALLVPQ
REIDWQPTVFWALAS SAILAFALAMSLMLFVLKNLFASIASLSTLAVPVCGVLFSWWL
LGENPGAVEGSGIVLIVLALALVSRKKKEAVSVKRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /label=ORF_f205
Protein_id="aac43050.1"
/db_xref="GI:386291"
/translation="MKASLALLSLLTAFTSHSLKSPAVPPTVVQIQANTNLAIADGAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QQIGSTLFYDPAYVOLTYPGGDVPQERGVCSDVVIRALRSQKVDLQKLVHEDMAKNFA
EYGYWKLKRDSNIDHRYVPNLETWFSRHDKTRPTSKNPSDYQAGDIVSWRLDNGLA
HIGYVSDGRARDGFPLVIHNIGAGAQEEDVLFNWRWYGHYRYFVR*
COMPIement (2886. . 2915)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /protein_id="aac43049.1"
/db_xref="GI:409786"
/translation="MGERKLHTGSLMSAAGKSNPLAISGLVVLTLIWSYSWIFMKQVT
                                                                                                                                                                                                                                                                                                                                                                                                                   1317. 2255
/note="similar to Desulfurolobus ambivalens hypoth. 28.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="promoter matrix score of 42; putative; within ORF f205, which would suggest alternate start codon" 2912. .3053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="predicted bend of 81 degrees"
3031. 3064
/standard_name="REP; repetitive extragenic palindromic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="similar to Bacillus stearothermophilus glycerol
dehydrogenase"
                                                                                                                                                                            /hote="93 bp overlap with end of L19201 (ECOWU87)"
156. .15760
/note="corresponds to lambda clone EC14-54"
                                                                                    'note="corresponds to lambda clone EC18-126"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="contains 1 REP sequence" 3090. 3219 /note="predicted bend of 75 degrees"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="glycerol dehydrogenase"
/protein_id="AAC43051.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1429. .1432
/note="TTT in M21516; TTTT here"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 kDa protein in sor 3' region"
                                                                                                                                                                                                                                                                                                                     /note="G in M21516; C here"
1266: .1305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="C in M21516; G here" complement(2282. .2899)
DAHEKFVKDFVAAWVKVMNLDRFDLL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(3174. .4316)
/gene="gldA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(3174. .4316)
/gene="gldA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                          'note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
/label-ORF_f380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /label=ORF_0312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1

    .93
    /qene="katG"

                                  <1. .161
/gene="katG"
                                                                                                                                                                                                                                                                                                  /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        element"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1429.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_difference 1720
```

CDS

promoter

CDS

```
Consensus quality: 168540 bases at least Q40
Consensus quality: 179014 bases at least Q30
Consensus quality: 179014 bases at least Q30
Consensus quality: 181723 bases at least Q30
Consensus quality: 181723 bases at least Q30
Estimated insert size: 160000; agarose-fp estimation
Estimated insert size: 192846; sum-of-contigs estimation
Quality coverage: 7.8 in Q20 bases; agarose-fp estimation.
* NOTE: This is a 'working draft' sequence. It currently
* consists of 34 contigs. The true order of the pieces
* is not known and their order in this sequence record is
* arbitrary. Gaps between the contigs are represented as
* runs of N, but the exact sizes of the gaps are unknown.
* This record will be updated with the finished sequence
* as soon as it is available and the accession number will
* be preserved.
                                                                                                                                                                          AC023609 196146 bp DNA linear HTG 29-JUN-2000
Mus musculus clone CT7-405C9, WORKING DRAFT SEQUENCE, 34 unordered
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 196146)

DOE Joint Genome Institute.

Direct Submission

Submitted (16-FEBD-2000) Production Sequencing Facility, DOE Joint Genome Institute, 2800 Mitchell Drive, Walnut Creek, CA 94598, USA on Jun 29, 2000 this sequence version replaced 91:6980219.
                                                                                                                                                                                                                                                                                                                                                                                                                        Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Mus
contig of 1073 bp in length
gap of unknown length
contig of 1184 bp in length
gap of unknown length
contig of 1329 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             contig of 1195 bp in length
gap of unknown length
contig of 1136 bp in length
gap of unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of 1195 bp in length
unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1050 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Center Project Name: 1108758
Center clone name: RG-MBAC_405C9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Web site: http://www.jgi.doe.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ō
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Center: Joint Genome Institute
Center Code: JGI
                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata;
Mammalla; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                    HTG; HTGS_PHASE1; HTGS_DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 196146)
DOE Joint Genome Institute.
                                                                                                                                                                                                                                                                      AC023609
AC023609.2 GI:8810275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3886:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1858:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1073:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5181:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3786:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0458:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6417:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Project Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequencing of Mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5081
                                                                                                                                                                                                                                                                                                                                                                   Mus musculus.
                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6318
6418
7476
7576
9309
9409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1074
11174
2358
2458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3887
5082
5182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10459
10559
11759
11859
12905
13005
                                                                                                                                                                                                                                                 teces
                                                                                                                                                          AC023609/c
                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                              RESULT 46
                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /procein_Id="AAC43055.1"
//db_xref="GI:996296"
//db_xref="GI:996296"
//db_xref="GI:996296"
//db_xref="GI:996296"
//db_xref="GI:996296"
//db_xref="GI:996296"
//db_xref="GI:996296"
//db_xref="GI:996296"
//db_xref="GI:996396"
//db_xref="GI:99639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation-"MCSGSAGGILTPISSLDLNALGNLPAAKGVDAEQSALENGLTLV
LKNIEFRILDSDGATSAILEAHRSILAGDTSLREHILAGVSAGISCAERIVASANHFCE
ERSESSSYLQERALDVCFQLLQGQIYGEQFRPAGKLTQPAICMADELIPSQFLE
LDKNHLKGLLLKSGGTTSHTVILARSFNIPTLVGVDIDALFPWQQQTIYIDGNAGAIV
VEPGERAVRYYQQEARVQDALREQQRVWLTQQARTADGIRIEIAANIAHSVEAQAAFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NGAEGVGIERTEMIYNDIRGARGESELYNI COQALESANGRSIIVRTNDIGGDKPVDY
LNIPAEANPFLGYRAVRIYEEYASLFTTQLRSILRASAHGSLKIMIPMISSMEEILWV
KEKLAEAKQQLRNEHIPFDEKIQLGIMLEVPSVMFIIDQCCEEIDFFSIGSNDLTQYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LAVDRDNAKTTRHYNSLNPAFLRALDYAVQAVHROGKWIGLCGELGAKGSVLPLLVGL
GLDELSMSAPSIPAAKARMAQLDSRECRKLLNOAMACRTSLEVEHLLAOFRWIQQDAP
LVTAECITLESDWRSKEEVLKGMTDNI.LLAGRCRYPRKLEADLWAREAVFSTGLGFSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WCASCSSAPEISNWQLSPASVSVPISARALLALPCGQCAGYATQFVMKKYYTAFQRGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LINSLTQWIQGMQQGSIVMLAVIMGLMLAFDMGGPVNKVAYAFMLICVAQGVYTVVAI
                                                                                                                                                                                                                  /protein_id="AAC43052.1"
/db_xref="GI:396293"
/translation="MELYLDTANVAEVERLARIFPIAGVTINPSIIAASKESIWEVLP
                                                                                                                                                                                                                                                                                                        RLOKA IGDEGILFAQTMSRDAQGMYEBAKRLRDA IPGIVVKIPVTSEGLAAIKILKKE
GITTLGTAVY SAAQGLLAALAGAKYVAPYVNRVDAQGGDGIRTVQELQTLLEMHAPES
MVLAASFKTPRQALDCLLAGCESITLPLDVAQQMLNTPAVESAIEKFEHDWNAAFGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AIPHSKSEHIEQSTISVARLQAPVRWGDDEAQFIIMLTLNKHAAGDQHWRIFSRLARR
IMHEEFRNALVNAASADAIASLLQHELEL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 translation="MRARIICGFRLVSETGSGSSSSDLTSASGASQWGNSSRSHWLKR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11 TGGAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAGTAGGCC 70
                                                                                                                                                                                                                                                                                                                                                                                                                              complement(4922. .4949)
//note="promoter matrix score of 47; putative; within ORF f220, which would suggest alternate start codon"
complement(4962. .7097)
//note="similar to phosphotransferase system enzyme I"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7771. .8850
/note="similar to phosphotransferase system enzyme II"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                  complement(4288. 4550)
/note="similar to Bacillus subtilis hypoth. 20 kDa protein, in tsr 3' region"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 176195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(7108. .7136)
note="promoter matrix score of 46; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7200. .55839
/note="corresponds to lambda clone EC21-52"
7578. .7699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 45.4; DB 1; Leuy... - Pred. No. 0.027;
               'note="predicted bend of 75 degrees"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/label=0RF_0109
/protein_id="AAC43054.1"
/db_xref="GI:409788"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /label=ORF_f711
/protein_id="AAC43053.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'db_xref="GI:409787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(7108.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "note="putative"
                                                                                                                                                                   'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /label=ORF_0359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                        'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .7428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PDAHVRR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Simi
Matches 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   terminator
```

promoter

CDS

length

unknown of 1070

ō

οŧ

contig gap of

14174:

· 71 TGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGT 121

g õ

length

unknown

```
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. I (bases I to 254993)
Montgomery, R. T., Grills, G., Han, J., Lee, E., Long, J., Pomerantz, R., Ioshikhes, I. P., Shim, C., Decker, J., Thomas, E., Perera, A., High Throughput Mouse Sequencing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (08-AUG-2000) Department of Molecular Genetics, Albert Einstein College of Medicine Genome Center, 1300 Morris Park Ave., Bronx, NY 10461, USA
On Jan 26, 2002 this sequence version replaced gi:14488282.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            2. (bases 1 to 254993)
Montgomery,K.T., Grills,G., Han,J., Lee,E., Long,J., Pomerantz,R.,
Ioshikhes,I.P., Shim,C., Decker,J., Thomas,E., Perera,A.,
Gordon,M., Goltz,J.S. and Rucherlapati,R.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Quality coverage: agarose-FP - N/A Quality coverage: 6 x in Q20 bases; sum-of-contigs estimation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * NOTE: This is a 'working draft' sequence. It currently consists of 44 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as * runs of N, but the exact sizes of the gaps are unknown. * This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 contig of 27415 bp in length contig of 30382 bp in length gap of unknown length contig of 23800 bp in length gap of unknown length contig of 19025 bp in length gap of unknown length gap of unknown length gap of unknown length gap of unknown length contig of 21859 bp in length gap of unknown length contig of 2476 bp in length gap of unknown length gap of unknown length contig of 8429 bp in length gap of unknown length gap of unknown length contig of 5225 bp in length gap of unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6950 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             unknown length
of 5870 bp in length
                                        PHASE1; HTGS_DRAFT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       57817:
57837:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 212944:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        56689:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Center Code: HPGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27416
27436
57818
57838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81638
81638
102176
102176
1121201
1135024
1135034
1156186
1166186
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178819
1178
                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                            AUTHORS
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AC078885 254993 bp DNA linear HTG 15-MAY-2002 Mus musculus chromosome 6 clone RP23-117123 strain C57BL6/J, WORKING DRAFT SEQUENCE, 44 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11 TGGAAAAAAAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAGTAGGCC 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 71 TGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGT 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.8%; Score 45.4; DB 2; Length 196146; 63.1%; Pred. No. 0.028; Live 0; Mismatches 41; Indels 0;
                                                    16585: contig of 1227 bp in length 16685: gap of unknown length 18161: gap of unknown length 18161: gap of unknown length 18161: gap of unknown length 19504: contig of 1343 bp in length 19504: contig of 1343 bp in length 21161: gap of unknown length 2215: contig of 1557 bp in length 22475: gap of unknown length 25994: gap of unknown length 25994: contig of 1579 bp in length 27573: gap of unknown length 18692: gap of unknown length 34592: contig of 2073 bp in length 34592: contig of 2073 bp in length 34592: contig of 8099 bp in length 49947: gap of unknown length 18692: gap of unknown length 50056: gap of unknown length 186053: contig of 13203 bp in length 12269: gap of unknown length 16279: contig of 1930 bp in length 16279: gap of unknown length 16279: contig of 1930 bp in length 16279: gap of unknown length 16279: contig of 1930 bp in length 16279: gap of unknown length 16279: contig of 1930 bp in length 16279: gap of unknown length 16279: contig of 1930 bp in length 16279: gap of unknown length 16279: contig of 1930 bp in length 16279: gap of unknown length 16279: contig of 1930 bp in length 16279: gap of unknown length 16279: contig of 1930 bp in length 16279: contig of 1930 bp in length 16279: gap of unknown length 16279: contig of 1930 bp in length 16270: contig of 1930 bp in length 16270: contig of 1930 bp i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="citbcJ7 mouse BAC library"
52111 a 44572 c 44684 g 51449 t 3330 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gap of unknown length contig of 31617 bp in length.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone="CT7-405C9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similaring
hes 70; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142796
142896
164430
                                                                    115359
116586
118062
118162
118162
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
119505
11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      02700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 47
AC078885/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
```

```
known length
2716 bp in length
known length
1677 bp in length
known length
2924 bp in length
                                                                                                                                                                                                                                                                                                           unknown length
of 1531 bp in length
unknown length
of 1233 bp in length
unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown length
of 1112 bp in length
unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gap of unknown leugth
contig of 1281 bp in length
                                                                                   length
bp in length
length
                                                                                                                                                                                                                                                             unknown length
of 1362 bp in length
unknown length
of 1877 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gap of unknown length
contig of 1520 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                       1037 bp in length
known length
1355 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length
bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of 1309 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of 1241 bp in length
                                                                                                                                   length
bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1412 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                contig of 142 bp in length gap of unknown length contig of 797 bp in length.
                                                                                                                         bp in length
bp in length
                                                                       1612 bp in length
                                                                                                                                                                                                                                    nown length
331 bp in length
nown length
                                                                                                                                                                                                                                                                                                                                                                         127 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                 572 bp in length
                       881 bp in length known length
                                               of 775 bp in length
unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length
                                                                                                                                                                                                                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      length
                                                                                                                                                                                                                                                                                                                                                                                    length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              length
                                                                                                                                                                                                                                                                                                                                                                                                             length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /sex="male"
1. 27415
/note="assembly_name:Contig138"
27436 . 57817
/note="assembly_name:Contig137
clone_end:SP6
             length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:10090"
/chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'clone="RP23-117123"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                           gap of
contig
                                                                                                                                                                                                                                                                                                                                     gap of
contig
gap of
contig
                        contig
gap of
contig
gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                      gap of
                                                                                                                                                                                                                                                                         contig
gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gap of
                                                                                                                                                                                                                                                 contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gap of
                                                                                                                                                                                                                                                                                                                                                                                                               gap of
                                                                                      yap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           strain="C57BL6/J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            254993:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       54034
                                                                                                                                                                                                                                                                                                                                                                                                                                                               2392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
```

```
PRI 18-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11 TGGAAAAAAAGCAAAATAAAAATTGCCCATCCCAGGGGGGGTCCAGGTGAAAGTAGGCC 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71 TGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGT 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 3.8%; Score 45.4; DB 2; Length 254993; Best Local Similarity 63.1%; Pred. No. 0.03; Matches 70; Conservative 0; Mismatches 41; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens junctophilin 3 (JPH3) gene, partial cds. AF429315.1 GI:17646244
                                               #1658. 102155
/note="assembly_name:Contig135"
/note="assembly_name:Contig134"
12121. 135073
/note="assembly_name:Contig134"
131094. 156689
/note="assembly_name:Contig133"
135094. 156689
/note="assembly_name:Contig132"
156710. 166185
/note="assembly_name:Contig131"
clone_end:T7
vector_side:left"
16206. 178798
/note="assembly_name:Contig130"
/note="assembly_name:Contig130"
/note="assembly_name:Contig129"
187268. 192492
/note="assembly_name:Contig129"
193513. 200084
/note="assembly_name:Contig129"
/note="assembly_name:Contig129"
/note="assembly_name:Contig129"
/note="assembly_name:Contig129"
/note="assembly_name:Contig127"
                                                                                                                                                                                                                                                                                                                                                                                                                                                              207075. .212944
7.00te="assembly_name:Contig125"
212965. .212946
7.00te="assembly_name:Contig124"
219489. .220369
7.00te="assembly_name:Contig123"
220390. .221164
7.00te="assembly_name:Contig125"
221185. .222796
7.00te="assembly_name:Contig121"
222817. .224762
7.00te="assembly_name:Contig121"
222817. .224762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      230166 . 231842

74 Arote="assembly_name:Contig116"

231863 . 232786

76 Arote="assembly_name:Contig115"

732897 . 233137

233158 . 234519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            224783. .225999
//note="assembly_name:Contigl19"
2206020. .227409
/note="assembly_name:Contigl18"
227430. .230145
//note="assembly_name:Contigl17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                note="assembly_name:Contig126"
vector_side:left"
57838. .81637
/note="assembly_name:Contigl36"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                       misc_feature
                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                            misc_feature
                     misc_feature
                                                          misc_feature
                                                                                              misc_feature
                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 48
AF429315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
```

ö

Homo sapiens. Homo sapiens

ACCESSION VERSION KEYWORDS SOURCE ORGANISM

DEFINITION

```
17736 WKRSGSWISSCXYYSASSCWMWMSSKSCMCCCMMWKRRCACCYSSMSCTSMYRCCWGGMX 17795
                                                                         Pseudomonas aeruginosa serotype 014 putative O-antigen biosynthesis gene cluster, partial sequence.
AF498405 AC104724
AF498405.1 GI:20559850
        17616 MIYMCCCWRRSYMYYRSMSAMGMRKSSWSGMRMMGSASSRRCKSASRSWCSRRMKGMR 17675
                                                                                                                                                                                                                                                    /db_xref="G1:20559852"
/translation="MTKSELIERIVTHQGQLSAKDVELAIKTMLEQMSQALATGDRIE
IRGFGSFSLHYRAPRVGRNPKTGESVRLDGKFVPHFKPGKELRDRVNEPE"
                                                                                                                                                                                                                     GACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGGCTCATTCCCCAGGTG 577
                                                                                                                                                                                                                                                                                                                                    458 CAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTA 517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Louy, 200

2 (bases 1 to 13413)

Raymond, C.K., Sims, E.H., Kas, A., Spencer, D.H., Kutyavin, T.V.,

Raymond, C.K., Sims, E.H., Kas, A., Spencer, D.H., Kutyavin, T.V.,

Direct Submission

Submitted (04-APR-2002) Genome Center, University of Washington,

Box 352145, Seattle, WA 98105-2145, USA

On May 13, 2002 this sequence version replaced gi:17975253.
                                                                                                                                                                                                                                                                                                         578 TICTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCGGCGCCCACCACGAGC 635
                                                   398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pseudomonas aeruginosa
Bacteria; Proteobacteria; gamma subdivision; Pseudomonadaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 13413)
Raymond, C.K., Sims, E.H., Kas, A., Spencer, D.H., Kutyavin, T.V., Ivey, R.G., Zhou, Y., Kaul, R., Clendenning, J.B. and Olson, M.V. Genetic variation at the O-antigen biosynthetic locus in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="EKDAMKELRKQEVESAGPTTIGDLIRAQMENQG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <1. .104
/note="ORF_1; C-terminal coding region of rpsA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. .13413
/organism="Pseudomonas aeruginosa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="ORF_3; hypothetical orfA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pseudomonas aeruginosa
J. Bacteriol. 184 (13), 3614-3622 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAM27622.1"
/db_xref="G1:20559851"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241. 525
/note="ORF_2; himD/ihfB"
/codon_start-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="AAM27623.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
/protein_id="AAM27624.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /serotype="014"
/db_xref="taxon:287"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product-"RpsA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product-"HimD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pseudomonas.
                                                                                                                                                                                                                       518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                   AF498405/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                   ö
                                                                                        g
                                                                                                                                à
                                                                                                                                                                           g
                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                 d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17436 RWWGKSAMYRMRRWWKGRGAMMCKKYSRNSRCMMMMKSYCASCRSCAMNSGTYMKCAS 17495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ::|:::| : : |:::| :: | |::|
17556 GAMSCWRRCCYMRGASSMRAGSMSRRRARGERSKWWWTGGWWRSKYYYYCTGRRMM 17615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MSSGGRFNFDDGGSYCGGWEDGKAHGHGVCTGFKGQGEYTGSWS
HGFEVLGVYTWPSGNTYQGTWAQGKRHGIGLESKGKWVYKGEWTHGFKGRYGVRECAG
NGAKYEGTWSNGLQDGYGTETYSDG"
a 32731 c 30696 g 28283 t 4254 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note-"component of the junctional complex between plasma membrane and endoplasmic reticulum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGTCCCCGTATTTAAACAATGTGATAAATTACTCCGTTACCGGAAAACCGCTGAACAAA 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   338 GGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGAC 397
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. I (bases 1 to 125020)
Holmes, S.E., O'Hearn, E., Rosenblatt, A., Callahan, C., Hwang, H.S., Ingersoll-Ashworth, R.G., Fleisher, A., Stevanin, G., Brice, A., A repeat expansion in the gene encoding junctophilin-3 is associated with Huntington disease-like 2 (4), 377-378 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 39 CCATCCCAGCGCGCTCCAGCTGAAAGTAGGCCTGTTCTGTCCGGTATTTAAATGCATTGA 98
                                                                                                                                                                                                                                    2 (bases 1 to 125020)
Holmes, S.E., Ingersoll-Ashworth, R.G., Ross, C.A. and Margolis, R.L.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTCGGGCTGAAAAGAGGATCCGCCGTTATCTGTTGCATTTC-CCCTTAGCCTGACTAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          218 CAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATATCTTCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              278 GGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                 /map="16924.3; between D168520 and WI-12410"
/note="isolated from a patient with Huntington's
Disease-Like 2 (HDL2)"
complement(35581. .35746)
                                                                                                                                                                                                                                                                                                Submitted (05-007-2001) Psychiatry, Johns Hopkins Medical Institutions, 600 N. Wolfe St., Baltimore, MD 21287, USA Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.8%; Score 44.8; DB 9; Length 125020;
llarity 13.5%; Pred. No. 0.04;
Conservative 237; Mismatches 279; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <del>..</del>
-..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(<36507, >36887)
/gene="JPH3"
/product="Junctophilin 3"
complement(<36507, 36887)
/gene="JPH3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(<36507. .>36887)
/gene="JPH3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product-"junctophilin 3"
/protein_id="AAL40941.1"
/db_xref="GI:17646245"
                                                                                                                                                                                                                                                                                                                                                              1. .125020
/organism-"Homo saplens"
/db_xref-"taxon:9606"
/chromosome="16"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /rpt_unit=ctg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="JP3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                     11694876
                                                                                                                                                                                          21583737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66
                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                   PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                          REFERENCE
                                                                    AUTHORS
                                                                                                                                                                                               MEDLINE
                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      සු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
```

CDS

```
LLGHFAGACWLLYWLGGLPALVFFGFWIDLGWVGHIGAVFYLVWMLNLYNFWDGIDGI
SYBENVCYCIGAVLLVVYSGVGSDDASOGIWLSALLASAVFGFLFWFPPRFFWGDA
GSGFLGIILAGLSLLAAAWVSPQLFWGWLILLGVFVVDATLTLLRRLLKGDKYYBAHRS
HAYQYASRYYGRHLDYTLAVGCINLVWLLPLALFVASGRIDGMLALLIGYLPLVALAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DMISPFGGHRWLFIAAPLVAIPLFIRFGMYRAVWRYLGNDALIAIAKAVTISALVLSL
LVYWYRSPPAVVPRSLVFNYWWLSMLLIGGLRLAMRQYFMGDWYSAVQSVPFLNRQDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LPRVA I YGAGAAGNOLVAALRIGRAMRPVAFIDDDKÕIANRV I AGLRVY TAKHIROMI
DETGAOEVLLA I PSATRARRREI LESLEPFPLHVRSMPGFMDLASGRVKVDDLQEVDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VRRFIYLSSIKVNGEGGEPGPPYADSLPNPVDPYGYSKLEAEGALLGIAAETGLEVV
IIRPYLYYGPCVKANVQTMMRMLKRGVPLPLGAIHNRRSLVALDNLTDLIATCIDHPA
AVNQVPLVSDGEDLSTTDLLRRMGNALRTPARLVPVPASWIGLVAKTLNKQAFAQRLC
GSLQVDIEKNRRMLGWTPPVGVDEALEKTARVFLDHQ*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="GI:20559862"
/translation="MMSLWLLLPAVAGLSLLLTAGLRRYAIARSLMDVPNARSSHQVP
TPRGGGVAIVLSFLLAVLLAAFLGMMDISLAIGILGAGVGTALLGFLDDHGHIAARWR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'translation="MLDNLRVRLLGLPRRQKRILQVATDIALVWLSLWLAFLVRLGTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VSAHFOLVGDLDPGNPSSIEEFDLERWRSEGTVECLGYRQDIASVFAHSHIVVLPSYR
EGLPRVLVEAAACGRVVVTTDVPGCRDAIEADRTGLLVPVRDAVALADAIQRLVESPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="aam27632.1"
/db_xref="G1:20559861"
/translation="MTGATGFVGAALVESLCSSEKYRVWAGYRRESSFWPEGVTPLFL
/translation="MTGATGFVGAALVWASETVSDPLAEFRKANVLGTLDLARQATSLG
TDNSCALLGERENLEVVL/TGENLGFATACNLGASKGEAEYILFINPDAELYEETIGSV
VREMMRSENSKYGVCGVQLIDEQGQVSRSCARFPSSARMIMHTMGVDRVFPALGYAMT
DWDHLSSRPVDHVIGAFYFVRRHVFKLVGGFDERFFVYLEDLDLSYRISCSGWSSFYL
STAQAFHAGGGASRQIKARRLFYSLRSKLIYIFKNLFVVSAFLILLSSLFFEPVIRSM
                                                                                                                                                                                                                                                                                                                                                                                                                                                             VEIIPTVIDLKRYERVEDESCFKKTVIGWIGSPSTQKYLLDIAPELVKLCVEYQASMLL
VGATPEISSYFSGVYVDVKAWKEEDEVGYIRQWTIGIMPLPDGPWEKGKCGYKLIQYM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MAKGSKASVFRSGIAWLYRRALGKKRLRVIFQNPDDRDALIGLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AITFEKSVLIRGSGVDLSLCHPVPESPGAPVVTLAARLLRDKGVVEFVEAANILRQRG
                                                                                                                                                                                                                                                                                                                                                           /translation="WKILLLSKYPRLGASSRLRTLOYLDYLESKGGRVDVRSFFDDGY
LSGIXSSGRRSFCNVLKSYISRFFVLFTVYRYDLIWIEKEIFPYFPSVAERFLRFFGK
PYVVDYDDAIFHNYDLSRNWLVRKFLGKKIDSVMRHSSCVIAGNDYLAERARVAGSSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acgypyvaspygynieivennesgilaegsrgwreslokilosseirrecgrngrssy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9610. .10377
/note="ORF_11; similar to Glycosyl transferases group 1"
                                                                                                                                                                          8097. .9167
/note="ORF_10; similar to Glycosyl transferases group 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11333. .12373
/note="ORE_13; similar to Glycosyl transferase group 4;
potential multiple membrane spanning domains."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12571. ... 13413 // Onte-"ORF_14; similar to N terminal coding region of Polysaccharide biosynthesis protein WpbM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1; Length 13413;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10395. .11336
/note="ORF_12; similar to NAD dependent
epimerase/dehydratase family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LRKKMGAAGRTLAERDFAIESIVQOHLDIYRALGSGA"
                                                                                                                                    FSMVKLSLPALRETWSAYLMLYRWLPKWIFFNATR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3942 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.8%; Score 44.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /protein_id="AAM27634.1"
/db_xref="G1:20559863"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
/protein_id="AAM27631.1"
/db_xref="G1:20559860"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
/protein_id="AAM27633.1"
                                                                                                                                                                                                                                                               /transl_table=11
/protein_id="AAM27630.1"
/db_xref="G1:20559859"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EKIYSLQVQSRRLHQTFIEVLS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3737 g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=
                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RFKAGTLEPRVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADLLG"
2899 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2835 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QAVELFREGGWYTVSSIINPFLYQSDRFFIGYLLSAAAVTSYYIPYEITIQSMILVGA
VSTVARPSISKLIRTSFAEALECFNKWLLRYLLIMGGGMLCLAFLLPFILKLWVGDYI
GDDSISVGRIICCLGVFFNALGAMFYSFLHANAKVKETAILHSIELPIFILILIILIPR
HGIVGAAVAWSLRTLADTIVLAVLSYFSGWRVKFANC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="MKSPIIDVVVVNWNAGLQLRSCVDSIFKNSFGLIRKVIVIDNGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="mnayakalskletytssmlytgyagfigsnllellikfnokvyg
lddforghwildevrglygeerwrnfkliggdirdigdcrrayegydyylhyaalgs
vprsiadpitytnsvnisgflnilvaskeagyksltyaassstygdhfolpkyeevigk
plspyavykyynelyadyfsrcygfnliglryfnyfgkrodpnaayipkwisami
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MNPKNIFWNLLGLGLPLIIAALTVPHLIATVGVERFGFLALSWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LIGYAGILDLGIGRAYTQKLSSIRGSDEEMNSYTIMSTAIRITAIVGGLGFSLIIIFG
LLGGGEFFSHKDVSSLELEFSVLLLAFALPLQAISATYRGVNEAYLNFKGINLLRIFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATNFGGPFLVSFYAKDLHYLVTTLVLSRALAFFIFRRLAHGVLKETLVERSCKYDRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VSTIKKVTSGSTPEVAEIVDSLYREIITAGTHKAESIKVAEAAKVIENTORDLNIALI
NELAIIFNKLEIDTESVLQAAGTKWNFLPFRPGLVGGHCIGVDPYYLTHKAQSIGYHP
EIILAGRRINDGMGAYVVSQLVKAMLRKRIHVDGARVLVMGLTFKENCPDLRNTKVVD
IVRELAEYNIAVDYYDPWVSYEEAQHEYGLTFISAPVEGNYDAVVLAVAHNEFKELGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KGEPYY INGDGETSRDFCF INNVIKANLLAAFCETEEAKNQVYNVAYGGRTTLGQLFD
SLKVELSRNGINYEQGPIYREFRAGDVRHSQAEIKKAQAYLGYNPEYDIQAGIAEAMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="nam27626.1"
/db_xref="GI:20559855"
/translation="MDIRAAVVGLGYVGLPLAVEFGKKRSVTGFDINHSRIRDLQKGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YQIAESLKLENPPLIGGOMDOQLSSIMEGALMYMRGTKALRAEIRALEERTSDDPFIP
ALRNIOEROAMYSTLKLDVNRVAVFRQDGVAEVPDDPVRPKKGILLVLGALSGLVWGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DSTLEVEKEELESAVHLKFTSTLSELQECNFFIVTVPTPIDEHKQPDLTPLVKASESI
AKVLKKNDIVVYESTVYPGATEEVCVPVLERESGLRFNSDFFVGYSPERINPGDKEHR
                                            /translation="myaltylifylengsgynlsflgwrtpegplslfyslafylggl
ggylsgmwlrligsyskghlpyrreamr"
                                                                                                                                                                                                                                                                                                                                                                            translation="MTEETFFQRVAKNEEFDLIGLLRGLWAEKWLIACITILTTSLVG"
                                                                                                                                                                                                                                                                                                                                                                                                                 IYAFLSKPVYEARIAVLPPSWSSIAGFNLGRAENGLTTFSVNDVYSVFLRNLLAEETR
                                                                                                                                                                                                                                                                                                                                                                                                                                            RNFFREVYLPSLSENERSGSKDRLYSNLSEEMEIQRPSKDERERYTVIFEKHDPGGAA
DWGRRYIKLAAEGSMKEMQDAVQREFEVKSRNIQQQIDILRDAAKARREEDRINELKEA
                                                                                                                          1167. .2216
/note="ORF_4; wzz; similar to chain length determinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4000.
/hoote="0RT"; similar to Polysaccharide biosynthesis
protein; potential multiple membrane spanning domains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="ORF_5; similar to UDP-glucose/GDP-mannose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
7156. .8091
/note="ORF_9; similar to Glycosyl transferase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="ORF_6; similar to NAD dependent epimerase/dehydratase family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DKIRAFGKLESVIYDLKFILDKSDSDLRL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/protein_id="AAM27629.1"
/db_xref="G1:20559858"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="AAM27628.1"
/db_xref="G1:20559857"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AAM27627.1"
/db_xref="G1:20559856"
                                                                                                                                                                                                                                                                                                                     protein_id="AAM27625.1"
                                                                                                                                                                                                                                                                                                                                                /db_xref="GI:20559854"
                           'db_xref="GI:20559853"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                     rransl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MIAFIVMAVRRSRAK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                             'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .7175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3578. .4603
/note="ORF_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /bsendo
                                                                                                                                                                                           orotein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WYISFVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /trans
```

CDS

CDS

CDS

CDS

```
Thu Jun 19 10:21:27 2003
```

June 17, 2003, 15:59:59; Search time 2683.55 Seconds (without alignments) 16148.066 Million cell updates/sec US-09-674-277-1 1489 1 ctgcagtccggagatgaaag......ttggaaggagcctggtcgac 1489 4109280 GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd. Total number of hits satisfying chosen parameters: 2054640 seqs, 14551402878 residues Post-processing: Minimum Match 0% Maximum Match 100% Listing first 150 summaries OM nucleic - nucleic search, using sw model IDENTITY_NUC Gapoxt 1.0 em_htg_pln:*
em_htg_rod:*
em_htg_rod:*
em_htg_ror:*
em_btg_vrt:*
em_btgo_hum:*
em_htgo_nus:*
em_htgo_other:* em_un:* em_vi:* em_htg_hum:* em_htg_inv:* em_htg_iot:* Minimum DB seq length: 0
Maximum DB seq length: 2000000000 em_htg_mus:* gb_sts:* gb_sy:* gb_un:* gb_vi:* em_fun:* em_hum:* em_ro:* em_sts:* gb_ba:*
gb_htg:*
gb_on:*
gb_ow:*
gb_pat:*
gb_pat:*
gb_ph:*
gb_ph:* em_om:* em_or:* em_pat:* em_in:* em_ba:* em_mu:* em_ov:* GenEmbl:* Perfect score: Sequence: Scoring table: Database : Searched: Run on: Title:

Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

H 20 E 4	1489 1476.4 1476.4	0000	1489 6 92077 1 92077 6	9 - 9 -	AX011297 AF074613 AX191727 AB011549	Sec
	476 081 081 536 386 386		92721 2407 12268 13632 220050 2587	9	AX191725 ECEHECCTP AE013690 AF135170 AA14156 AB017595	
	384.8 368 357.6 349.4 348.8			11911	AF276752 ECIS91TP AR098264 AE010762 AF294823	Sec Sec Shi
w ~ m m o .	334.6 333.6 331.8 326.2		302150 3289 10578 4754 340857		AP001510 AF486647 AF00314 RLE438039 AP002010	AP001510 Bacillus AF486647 Rhizoblum AE007314 Sinorhizo AJ438039 Rhizoblum AP003010 Mesorhizo
- C1 E 4 E C0 C C	304.2 309.2 305.4 305.4 303.4 303.6				AL64 6061 AL64 6061 ECOKATGA AE0004 68 ECCUW87 AP002567 AN1050525	
300H0E450C	202.23 302.22 302.22 208.4 2088.4 2088.4 2088.4 2088.4 2088.4		10667 2885 10677 2223 2223 2223 2223 2223		AE001562 AE027168 AE025967 HWY16851 AF314111 AF314115 AF314120 AF314121 AF314121	
- M O O - I O M + I O W - M	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		2223 2223 2223 2223 2223 2225 2235 2235		MT040555 MT041305 MT041306 MT041310 MT041313 MT041314 MT041304 MT06269 MT06669	U40995 Mycobacteri U41305 Mycobacteri U41306 Mycobacteri U41313 Mycobacteri U41313 Mycobacteri U41314 Mycobacteri U41314 Sycobacteri U4139 Sequence 1 I74293 Sequence 1 U06569 Mycobacteri
\$45000000000000000000000000000000000000	22222222222222222222222222222222222222		2316 2326 2326 44201 2353 2322 2322 3027 10230 2233 2233 2235 2235 2235		MTU06264 MTU06264 MTU06260 161357 AE007051 MTU06262 MTU06267 MTU06270 AP126956 AP2000951 AB020065 AB020120 AB020120	006264 Mycobacteri 006260 Mycobacteri 101357 Sequence 20 AE007051 Mycobacteri 297193 Mycobacteri 006562 Mycobacteri 006570 Mycobacteri AR126956 Streptomy AE000951 Archaeogl AB0200234 Bacillus AB020028 Bacillus AB020028 Bacillus AB020028 Bacillus AB020067 Bacillus AB020067 Bacillus AB020067 Bacillus AB020067 Bacillus

X68081 M.tuberculo U06266 Mycobacteri U06266 Mycobacteri U06265 Mycobacteri AL121746 Streptomy U06273 Mycobacteri U06272 Mycobacteri AB020235 Bacillus AB020156 Bacillus AB020156 Bacillus AB020158 Bacillus AB020158 Bacillus AB020158 Bacillus	DNA linear PAT 06-SEP-2000 division; Enterobacteriaceae; F.C. enterohemorrhagic escherichia MINIQUE THERESE MARI (FR); LAURE MOFI DIAGNOSTICS (FR) 1."	6; Length 1489; 0; Indels 0; Gaps 0; CATCAGCGTGGTCCCGCAGGCCA 60
10 1 MTKATGCP 24 1 MTU06266 24 1 MTU06268 16 1 MTU06265 22 1 SCF73 12 1 MTU06263 32 1 AB02013 38 1 AB02013 38 1 AB020156 44 1 AB020158 56 1 AB020122	ALIGNMENTS 1489 bp DNA 409955908. and Laure, F.C. r detecting enter 4-NOV-1999; PASTEUR SANOFI flers herichia coll" 1562"	.0%; Score 1489; DB .0%; Pred. No. 0; 0; Mismatches GAAAGCACCACTGTGTGTACCC GAAAGCACCACTGTGTGTACCC GAAAGCACCACTGTGTGTACCC ACTCAATGACTACCGACGCAC GGTTTCCCTGCTGAAAAATGTC GGTTTCCTGCTGAAAAATGTC GGTTTCCTGCTGAAAAATGTC GGTTTCCTGCTGAAAAATGTC GGTTTCCTGCTGAAAAATGTC GGTTTCCTGTGTGAAAAATGTC GGTTTCCTGTGAAAAATGTC GGTTTCCTGTGAAAAATGTC GGTTTCCTGTGAAAATGTC GGTTTCCTGTGAAAATGTC GGCCAAACTGCCGC AAGAATGGTCGCAAACTCCCGC CAGGTCTGCGCAAACTCCCGC CAGGTCTGCGCAAACTCCCGC CAGGTCTGCGCAAACTCCCGC CAGGTCTGCGCAAACTCCCGC CAGGTCTGCGCAAACTCCCGC CAGGTCTGCGCAAACTCCCGC CAGGTCTGCGCAACTCAACC CAGGTCTGCGCAACTCAACC
139 296.8 19.9 4810 140 296.4 19.9 2308 141 296.4 19.9 2318 142 295.8 19.9 2318 143 295.6 19.9 14922 144 295.6 19.9 2312 145 293.8 19.7 2208 147 293.8 19.7 2238 148 293.8 19.7 2238 149 293.8 19.7 2238 149 293.8 19.7 2238 149 293.8 19.7 2238	TION Sequence STON AXO11297 AX	tch 1 1 1 1 1 1 61 61 121 121 121 121 121 131 301 361
· .		
AB020076 Bacillus AB020116 Bacillus AB020116 Bacillus AB020117 Bacillus AB020064 Bacillus AB020071 Bacillus AB020072 Bacillus AB020074 Bacillus AB020074 Bacillus AB020075 Bacillus AB020075 Bacillus AB020077 Bacillus AB020077 Bacillus AB020077 Bacillus AB020077 Bacillus		
B020078 B020116 B020116 B020117 B0200117 B0200166 B020071 B020073 B020073 B020075 B020076	ABU2000// ABU200081 ABU20081 ABU20081 ABU20083 ABU20084 ABU20086 ABU20086 ABU20086 ABU20090 ABU20000 ABU200000 ABU200000 ABU2000000000000000000000000000000000000	AB020114 AB020118 AB020068 AB020069 AB020089 AB020095 AB020121 AB020121 AB0201121 AB0201121 AB0201121 AB0201121 AB0201121 AB0201121 AB0201131 AB141109 AF314110 AF3141110 AF3141110 AF314124 AF3141110 AF314124 AF3141309 MTU41309 MTU41309 MTU41311 MTU41312 AF314123 AF314124 AF314124 AF314124 AF314124 AF314124 AF314124 AF314124 AF3141309 MTU41311 MTU41312 AF314123
99.99 2225.91 1 2225.99 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	19.9 19.9
		297 111 122 123 124 125 129 129 130 144 129 130 130 130 130 130 130 130 130

```
/translation="MIGKVQDFFLCSLLRIVSAGWCD"
3032. 3035. 3035.
Anote="100 pct identical (0 gaps) to RBS at 641. .644 locus
ECNRIREP accession X02302"
A040. 3897
Agene="rep2"
Anote="17008"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /standard_name="CIS"
/standard_name="CIS"
/note="88 pct identical to locus ECCIS accession X12587,
required for cis-activation of oriR by the replication.
initation protein"
4072. .4080
/note="dana site; 100 pct identical (0 gaps) to locus
ECNRIREP at (1682. .1690) accession X02302"
/standard_name="oriR"
/note="80 pct identical to oriR (1094. .1242); minimum
segment for replication of E. coli IncFII plasmid NR1
ECREPAL X12776"
                                                                  /note="91 pct identical (0 gaps) to 24 residues of an approx. 24 aa protein uORF P3OREPFIC, accession M16167, translationally coupled to replication initiation protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product-"replication initiation protein"
/profuel__de="AAC7076.1"
/db_xref="G1:382122"
/translation="WTDLOQTYPROVNNPPPTPREGAGTLKFCEKLMEKAVGFTSR
PSPAHUWAHARSKGLARRMPPVLRRNFADALLGGCLFHYDFDFNRNVGFTSR
IATESAGKLSITRARIPELEGLITYOTEYDELIGCYIPTDIFFTPALFACH
SEDAVAAARRSKVEWENRLRKKGGLDTLGWDELIGCYIPTDIFFTPALFALDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6836 CTGCAGTCCGGAGATGAACAGCACCACTGTGTGTACCCCATCAGCGTGGTCCCGCAGGCC 6895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RARARRDAGRERQDIVTLVKRQLIREISEGRFTANREAVKREVERRVKERMILSRNRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60 ATGATTTTTGTCACAGACTCAATGACTACCGGACGCACTGAACCTTCCGGTTGTTTCTCC 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="95 pct identical to (0 gaps) 64 residues of a 128 aa protein REPA4 locus ECRSC1 accession V00351"/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 CTGCAGTCCGGAGATGAA-AGCACCACTGTGTGTACCCCATCAGCGTGGTCCCGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="96 pct identical amino acid sequence and equal length to REP2_ECOLI SW: P03066"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4169. .4197
/note="predicted sigma 70 promoter; score of 56%"
4259. .4453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1; Length 92077;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                /product-"replication initiation protein"
/protein_id="AAC70075.1"
/db_xref-"GI:3822121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 1476.4;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99.2%; Scor.
7 99.9%; Pred
0; }
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /direction=right
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4259. .4453
/gene="L7009"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4259. .4453
/gene="L7009"
                          2973. .3047
/gene="L7007"
/gene="L7007"
                                                                                                                                                                                                                                                                                                                                                                                                                    3040. .3897
/gene="rep2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .4095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SRLATASP'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 1488;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rep_origin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         promoter
                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                       CDS
                                                                                                                                                                                                                                                                              RBS
                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                         /translation="MRKYIPLVLFIFSWPVLCADIHGRVVRVLDGDTIEVMDSRKAVR
IRLVNIDAPEKKQDYGRWSTDMMKSLVAGKTVTVTYFQRDRYGRWLGQVYAPDGMNVN
QFMVRAGAAWVYEQYNTDPVLQVBARQQKRGLWSDADPVPPWIWRHRK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="G1:3822118"
/translation="MEKTKQEWLYQLRRCSSVNTLEKIIHKNRDSLSTSERESFNSAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 //orte="98 pct identical (0 gaps) to 57 residues of an approx. 200 aa protein; plasmid R100 miniplasmid pSM1 ORF 4, TRSW: Q52340"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="initiation site; Escherichia coli plasmid R100 ssiB
gene; 99 pct identical to ssiB locus R108SIB accession
D90185"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MKLIIFILIVLIIAALLIRIILRSVNQHSPLLMQLHAAGIRTGD
AERILSGGEYDASHLRPERRRRDILLEEVLRQAGIPLLRSHDARKLLQMTGEWLNTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation-"MSQTENAVTSSSGAKRAYRKGNPLSDAEKQRLSVARKRASFKEV
KVFLEPKYKAMLMQMCHEDGLTQAEVLTALIKSEAQKRCV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7416. .2421
/note="100 pct identical (0 gaps) to the -35 region at 233 .28 locus ECNRIREP accession X02302"
2439. .2445
/note="100 pct identical (0 gaps) to the -10 region at 46. .52 locus ECNRIREP accession X02302"
/note="100 pct identical (0 gaps) to RBS at 80. .85 locus ECNRIREP accession X02302"
                                                                  /product="hypothetical protein 15.6 kDa protein in fin0 3'
                                                                                                                                                                                                                                                                                                                                                                      an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="98 pct identical amino acid sequence and equal
length to CPB2_ECOLI SW: P03847"
                                                                                                                                                                                                                                                                                                                                                                 /hote="55 pct identical (0 gaps) to 66 residues of approx. 72 aa protein HHA_ECOLI SW: P23870"
                                                                                                                                                                                                                                                                                                                                                                                                                                                            product "putative hemolysin expression modulating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  899. 1927
note="predicted sigma 70 promoter; score of 56%"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="predicted sigma 70 promoter; score of 69%"
2973. .3047
                                                                                                                                                                                                                                                   note-"predicted sigma 70 promoter; score of 56%"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="CopB protein (RepA2 protein)"
/protein_id="AAC70074.1"
/db_xref="GI:3822120"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="hypothetical protein"
/protein_id="AAC70073.1"
/db_xref="G1:3822119"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DHRLAELITGKLYDRIPKEIWKYVR
                                                                                          region precursor"
/protein_id="AAC70071.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein_id="AAC70072.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(2240. .2327)
                                                                                                                                     db_xref="GI:382211
                     /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
'trans1_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1905. .2243
'gene="L7005"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'codon_start=1
                                                                                                                                                                                                                                                                                            gene="L7004"
                                                                                                                                                                                                                                                                                                                         658. .1867
gene="L7004"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .905. .2243
/gene="L7005"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="L7006"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                483. .2737
gene="cpb2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAQQSPEHRS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -10_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -35_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  promoter
                                                                                                                                                                                                                              promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
```

Ŋ

240 CGCGCTGATACCGGCAGATGGTCGCAGATGGTCGCAGATGGTCGCAGATGGTCGCAGATGGTCGCAGATGGTCGCAGATGGTCGCAGATGGTCGCAGATGGTCGCAGATGGTCGCAGAATGGTCGCAGAATGGTCGCAGAATGGTCGTCATCAAACCGATGGTCATCAAACCGATGGTCATCAAACCGATGCTTCGTCATCAAACCGATGGTCATCAAACCGATGCTTCGTCATCAAACCGATGTCATCAAACCGAATATTCAAATTCAAACCGCAGCAGAATATTTTTTTT	7856 CTGACTGGTAATGTTGCCCTTGAATCCTTGGGATTTAAAACGCTGGGGATTTGCTGCGGA 7915 1080 AGAGAAGATGTTGCCGTGAATCCTTGGGGGCCTGACAACGCTGCGGGA 7915 1080 AGAGAAGATGACTGGGAGTCGGACCTGGTAATACTGGGGGCCTGACAACACACAC	8 6 6 6 6 6
Oy 60 ATGATTTTGTCACAGACTCAATGACTACC	900 CAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCGCGCG 959	67 67 68
Query Match Best Local Similarity 99.3%; Pred. No. Matches 1488; Conservative 0; Mismatc Qy 1 CTGCAGTCCGGAGATGAA-AGCACCACTGT Db 6836 CTGCAGTCCGGAGATGAACAGCACCACTGT	780 TCCCAGGATTGGTGCCCTGCGGATTATGGTCATTATGGTCCTTTCTTATTCGTATGGCT 839	6 d 6 d
RESULT 3 AX191727 LOGGESTON AX191727 Sequence 9 from Patent W00149775 DEFINITION Sequence 9 from Patent W00149775 VERSION AX191727 VERSION AX191727 VERSION AX191727 AX191727 GENETICHIA COLI ORGANISM ESCHETICHIA COLI BACTERICHIA BACTERICHIA TITLE AUTHORS TITLE JOURNAL AVI Biopharma, Inc. (US) FEATURES SOURCE AVI Biopharma, Inc. (US) I92077 AVI Biopharma, Inc. (US) COTGANISM—"Escherichia (ADA XTEF—"LAXON: 562") ORIGIN ORIGIN	420 ACCCCTAGTATTTTGTCTGTAGTATCTCCAGCAATAGGTATACCTGTTGCATC 479 725 ACCCTTAGTATTTTTGTCTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATC 7315 725 ACCCCTTAGATATTTTTTTTTTTTTTTTTTTTTTTTTTT	
OY 1260 ATCAGGGAACCTTTTCACGTAFGCCCAFG	180 AGGCCGGGGAACTCCGTCCGGCCAGTGAACCGTGCCACTCCGGGCAGTACATGCCGC 239	6 6 6 6 6 6

```
TGGATGATGAGGAGTCTGGCCCTGATCGCG 1319
                                  GTGTGTACCCCATCAGCGTGGTCCCGCAGGCC 59
                                                                                                                                                                            linear PAT 15-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGGACGCACTGAACCTTCCGGTTGTTTCTCC 6955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAACTCCCGCTCCGTGCAGCGGGCTATTTCAG 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAGAAGACCAGCTTTTGTTTCTGACATCCA 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AACCGTGCCACACTCCGGGCAGTACATGCCGC 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420 ACCCCTTAGTATTTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATC 479
                                                                                                                                                                                                                                            a subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGACGCACTGAACCTTCCGGTTGTTTCTCC
                                                                                                                                                                                                                                                                                                                                                                                            1; Gaps
                                                                                                                                                                                                                                                                                ivision composition and method 2001;
                                                                                                            76.4; DB 6; Length 92077;
. 0;
tches 1; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                            1; Indels
                                                                                                                                                                             DNA
                                                                                                                                                                                                                                                                                                                            a coli"
                                                                                                                                                                                                                                                                                                                                                3523 t
                                                                                                                                                                              75.
```

AB011549 92721 bp DNA circular BCT 27-APR-1999 Berberichia coli plasmid no157 DNA complete seminone	GI:4589740 ded lipoprotein; taga.		ESCHETICHIA. I (sites) Makino, K., Ishli, K., Yasunaga, T., Hattori, M., Yokoyama, K., Yutsudo, H.C., Kubota, Y., Yamalchi, Y., Ilda, T., Yamanoto, K.,	Honda,T., Han,C.G., Ontsubo,E., Kasamatsu,M., Hayasni,T., Kunara,S. and Shinagawa,H. Complete nucleotide sequences of 93-kb and 3.3-kb plasmids of an enterohemorrhagic Escherichia coli 0157:H7 derived from Sakai	Outbreak DNA Res. 5 (1), 1-9 (1998) 98290540 2. (bases 1 to 92721)	Makino, K. Submitted (24-FEB-1998) Kozo Makino, Research Institute for Microbial Diseases, Osaka University, Molecular Microbiology;	yamadaoka, 3-1, Suita, Osaka 562, Japan (E-mail:makino@bkns01.blken.osaka-u.ac.jp, Tel:81-6-879-8318, Fax:81-6-879-8320) On Apr 20, 1999 this sequence version replaced gi:3336997.		/sub_strain="RIMD 0509952" /db_xref="texon:562" /plaamid="p0157" /note="RIMD 0509952 is a strain of enterohemorrhagic E.	col1, EHEC 015/:H7" join(92527, 92721,1. 2502) /gene="teg7. 92721,1. 2502)	/gene='taga.' /codon_start=1 /transl_table=11 /product="ToxR regulated lipoprotein"	/procein_di="baal/5/.3" /db_xref="di="baal/5/.3" /db_xref="di="baal/5/.3" /translation="mwrkmnerwrtpmklkylscfilaplaigyfsataadnnsaiyf /translation="mwrkmnerwrtpmklkylscfilaplaigyfsataadnnsaiyf /translation="mwrkmnerwrtpmklkylscfilaplaigyfsataadnsaiyffagsgilaplaigyfscfilayfykaddktp	VQVEAKDDNNA LUSTLTLY PPSELPDT IT HLDGV PEGELDFTPHGTKK I INTVAKON KLSDASGSSTISHLTNNALVETHTANGRWYRDIY LLDGOPDLEGKWYRFYSSAGYSSTV FYGDRKYTLSVGNTLLERYVNGOWFRSGELENNRITY AQHIWSAELPAHWIVPGINLV IKQGNLSGRLNDIKIGAPGELLLHTIDIGMLTTPRRFPFAKDKEAHREYFQTIPVSR	MIVNTAPLHEKEVALPYGELLIDADDFGNGGMBGGTARGRIGKELVSHG-IDNANYGLN STAGLGENSHPYVVAQIJAAHNSTGNTANDIQVHGGSGGGGTYTLDSTLGNEFSHEVGH NYGLGHYVDGFRGSVHRASABNINSTWAWNGDKKRFIPNRY PROTINBKSCLINNOODBFF DGHKFGFDAMAGGSPFSAANRFTWYTPNSSAIIQFFBNKAVFDSRSSTGSKNADT	QEMESTYEHTIDKAEQITASVNELSESKAAELMAEXVKVHWANDWIKNI I PITASA DNRGSILTINHEAGYNSYLEINGDEKVVSQGYKKSFVSDGQFWKERDVVDTREARPE QFGVPVTLVGYYDPEGTLSSYIYPAMYGAYGFYSDDSQNLSDNDCQLGVDTKEQQL RFRLANHRANNTVMNKFHINNVFESQPTQATLVCNNKYLLDTKSCJPAPBGLTTYVNGQ	ALPAKEMEGCIYSVNSGKRICLEVGGZKSCISLEUWIYGGEVIYUSGAKARYLLSUWUN LSYNTGEFVGNVNPADMKKVKAWNGQYLDFSKPRSMRVYYK" 25893464 /gene="etpc"	25893464 /gene=etpC= /codon_start=1 /transl_table=11	/product="Type il Secretion parimay related protein" /protein_id="BAA31758.1" /db_xref="G1:3336999"
AB011549 LOCUS	ACCESSION VERSION KEYWORDS	ORGANISM	REFERENCE AUTHORS	TITLE	JOURNAL MEDLINE REFERENCE	AUTHOKS TITLE JOURNAL	COMMENT	FEATURES source		gene						gene	CDS	

	480 AATAAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATG 539 	540 ATAAAAAACTCTTCCTGTTCTGATTCTTCTGGGGCTATCGGGGAGCTTTTCTACCGCT 599	600 GTAGCCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAACACTGGATTTAACT 659 	660 CCTCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACC 719	720 AGATTICAACAGCIGGATAIGGAGGCICIGAAAAAAGAITICAAAGAITIGCIGACAACI 779 	780 ICCCAGGATIGGIGCCCIGCGGATIAIGGICATIAIGGICCTITCTITAITCGIAIGGCT 839 [840 TGGCACGGTGCCGGAACATACAGGACATATGATGGCCGGGGGGGG	900 CAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGA 959 	960 TIGCTGTGGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTC 1019	1020 CTGACTGGTAATGTTGCCCTTGAATCCATGGATTTAAAACGCTGGGATTTGCTGGCGA 1079	1080 AGAGAAGATGACTGGGACCTGGTATACTGGGGGCCTGACAAGCCTCTTGCA 1139	1140 GATAACCGGGATAAAAAGGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTT 1199 	1200 ATTTATGTCAATCCTGAAGGCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGAT 1259	1260 ATCAGGAAGCTTTTCACGTATGGCCATGGATGATGAGGAGTGTGTGGCCCTGATCGCG 1319	1320 GGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCA 1379 	1380 GGGCCTGATGGTGCACCTGTGGAGGACCAGGGACTGGGAAAAAAAA	1440 GGAAACGGCAAATATACCATCACGGGGCCTGGAAGGAGCCTGGTCGAC 1489 	4
ą a	Oy Db	Q2	oy Db	δλ	Qy Db	Qy Dp	oy do	, do da	Oy Db	oy O	Qy Db	oy Dp	Qy Db	Oy Op	Qy Db	oy da	Oy Dp	RESULT

```
76410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MKLREQCVALLVVLLILSLMVTIAAVIAERNGRTFLRTVAQLDO"
//translation="MKLREQCVALLVVLLILSLMVTIAAVIAERNGRTFLRTVAQLDO
LQAKWCSTAETIAETIANGLIQSEQCESRKTHLAQNNAAQSERQFETRGGDVRGGIVDAQA
CFNLNAINYGVVDLTSIPYAARIFQOLLINLQVELLQARQVTAALRDWIDRDDKFVNG
GAEDEVYMGKEPPYLAANQPWQDVSELRLIRGIDARLYRKLLPYVCVLPTSDLSVNVN
TLLDSQAPLLAALFLTKPDSLPVTELLQRRPRTGWESVAAFLDAPPLKDIDTSAAMPV
LAVSSNYFLVRLHVRSGEHLFSQQTLMQWREERFRIIQRQYGLTMREVP"
/gene="etpl"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        76470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /trānslation="MSQRGFTILEMMLILLLMGITAGLVLMSFPDSAQNHLQQQRERL
QQQLDXALDRSQQDGILLMGIQVREDGWRFKVLQRGTAESPPTLAEGGDIWQGYVWQTW
QPRRAAMGGRLPDDVRLELQYLRGLQWMSEHDDGAEPDILLLPGGEVTPFRLLFRQVG
EBAVVGLQYDBNGTATLERGEVSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KVQRLABLQRGISQMERDLTQMLPRHSRGNEGLLLAAPHLLKSDDWGISFTRNSWLNP
AGMLPRPELQWVGYRLRQQKLERLSYFHVDHPSGVSPDVRVMLDGVHAFRLRFFVNGD
WQARWDSTGILPQAVEVTLVMDDFAELPRLFLVSKETAE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation-"MTLLEVIVALVVFALAGMALMQASTQQAAGIGRMEEKVLAGWLA
DNOMVQLQLEKTWPENGWGEKTISFAGTEWYLRWGGPDSDVPQPRSLEVEVRRTKEET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MSQQRVKGFTLLEMLLALAVFAALSISAFQVLQGGIRAHELSRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCCAGTTAAGCCAGCGGTTTCCCTGCTGAAAATGTCGGCAAAACGGGGAAGCATCAGA 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 CTGCAGTCCGGAGATGAA-AGCACCACTGTGTGTACCCCATCAGCGTGGTCCCGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transl_table=11
/product="Type II secretion pathway related protein"
/protein.id="Basa1765.1"
/db_xref="GI:3337006"
                                                                                                                                            /product="Type II secretion pathway related protein"
/protein_id="BAA31763.1"
/db_xref="GI:3337004"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=11
/product="Type II secretion pathway related protein"
/protein_id="BaA31766.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                secretion pathway related protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1; Length 92721;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1476.4; I
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
/product="Type II secretio
/protein_id="BAA31764.1"
/db_xref="GI:3337005"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref-"GI:3337007
                                                                                                                        L_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                     codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10133. ,11110
/gene="etpK"
10133. ,11110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SALVSLRSSVVRE"
                                                                                                                                                                                                                                                                                                                            /gene="etpl"
9193. .9540
/gene="etpl"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9537. .10136
/gene="etpJ"
9537. .10136
/gene="etpJ"
    8624. .9178
/gene="etpH"
8624. .9178
/gene="etpH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="etpK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99.2%;
llarity 99.9%;
Conservative
                                                                                                                        /trans]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 1488; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                           NPRDENLIMTYEDPVEZELDGISQUANEXUMITEARSLIAITGOPDVVLVGETRÖGE
TAQIAVQASLIGHLVLSTLHTNSAAGALSRLODMGIPPFLLSTSLIAVLAQRLVRTLC
PRCRQPCQVSTELAMDMDIPPETTIMQPAGCQHCSFTGYHGRTGIHELLLIDDRIRTA
IYQGBELGITRLAGSRYLTLRGDGRQKVLAGETSWEEVVRYTESRLQEEE"
6939 . 8162
/gene="etps"
/gene="etps"
/translation="MLFFLSFRGDRGLFIRDIVLKMLTPNRLLCVILLIAGYQLVSVI
HWHTQAASVPGLSRVSAFPTAVTGOOPTEREVFTLEGRASPLSSEGAQETWBSLS
DDLLSGEDLUVRGILLSSVAEHSVALFAHNRQFSLSVGERVPSYDATISAFSDHIV
INYQGKTVSLPLRYDNTEKRNAYDNNNLTVGDVITQDNFRVESVFDIMSFSAVTVNNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation-"MSRVVQNVSESRPLLPFSFSRTQRILLLREQEGNRVFCMEDTPA
SALLEVRRVAEGPLNVTTVSAEAFEKQLVSSYQRDSDEARQMMAEIGNEMDFYTVAGE
LPDEDLLDANDDAPITRLINAMLTEAIKERASDIHIETYERHLQVRFRIDGYLREIL
RLERRLASLLISRIKVMARLDIBAERRVPQDGSMAVLEIGGRRAVDVSTLPSNHGERIV
LRLLDKNSVSLDLAALGAMSQONQRHIDALIRRPHGIILVTGPPGSGRGTTLYAALSLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KQVHHKHSLRSILRFRPRGGSSAELALLTRQLATLVAASLPLEËALDALLROSEKPRO
RILTAAVRFKULEGHSLAAMGMFPGFTERLYCAMVAAGETSGRLDVYLSRLADYTEG
ROTHRURLLGALLYPCVLTLVAVOVYAILLTAAVPKVVEGETHMKOTLLSTRYLMGA
AEVSQTWGPWILLAAALGGIAGRMILHQPSQRLAFHHLLLRLPVVGRISRGLNTARYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation-"MRRQHQRGFTLLEIMVVIVILGYLASLVVPNLMGNKDRADRQKV
MSDLVALESTLDMYRLDNNRYPTTEGGLRALVSKPTVQPEPRNYRQDGYIRRLPQDPW
GGDYQLLNPGQYSDIDIFSPGPDGVPNTEDDIGNWTLGNAQP"
                                                                                           LSGYRLIPGKHSSLFYNAGLHDNDLAVSVNGSELRDTRQAQQIMKQLPELKEIKITVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'translation="MALFHYQASDIHGRKRSGILEADSARHARQLLREQALIPVRLDE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RTLSILNASAVPLLQAMHISGDVLSNDWARHQLATAAELVREGVSLHQALEQTSLFPP
MWRHMIASGENSGELDSMLERAADNQDREFSTQMQLALGLFEPLLVVGMAGVVLFIVL
                                                                                                                                                                                                                                                                              /product="Type II secretion pathway related protein"
/protein_id="BAA31759.1"
/db_xref="GI:3337000"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5432. .6937
/gene="ctpE"
/codo_start=1
/transl_table=11
/product="Type II secretion pathway related protein"
/protein_id="BAA31760.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product-"Type II secretion pathway related protein"
/protein_id="BAA31761.1"
/db_xref="GI:3337002"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="Type II secretion pathway related protein"
/protein_id="BAA31762.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                db_xref-"GI:3337001"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            db_xref="GI:3337003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AILQPLLQLNNMNN"
8193. .8627
/gene="etpG"
8193. .8627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
                                                                                                                    RDGQLYDAFIAVGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5432. .6937
/gene="etpE"
5432. .6937
                                                                                                                                    3675. .5432
/gene="etpD"
3675. .5432
                                                                                                                                                                                     3675. .5432
/gene="etpD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8193. .8627
/gene="etpG'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                            gene
```

180 AGGCGGGGGAACTCCGTCCGGCCAGTGAACCGTGCCACACTCCGGGCAGTACATGCCGC

ò

CDS

```
AAGACCAGCTTTTGTTTCTGACATCCA 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCAACGGCATCGTCAGTTGCGGCTTGGA 419
                                                                                                                                                                                                                                                                                                                                                                                     GTGCCACACTCCGGCAGTACATGCCGC 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCCGCTCCGTGCAGCGGCTATTTCAG 299
                                                                                                                                                                                                                                                                                                                                            FGTACCCCATCAGCGTGGTCCCGCAGGCC 59
              TGATGAGGAGACTGTGGCCCTGATCGCG 77670
                                                                                                                                        linear PAT 15-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                             ACGCACTGAACCTTCCGGTTGTTTCTCC 119
                                                                                                                                                                                               bdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                            1; Gaps
                                                                                                                                                                                                                              ion composition and method
                                                                               ; DB 6; Length 92721;
                                                                                                                                                                                                                                                                                                                            s 1; Indels
```

'n

```
VLTGWYALESWGFRILEFAGGREDDWESDLYWWEDDWRFLADNRDKRULLOSLUGASLEWOLDLY

MCLIYVNPEGGGGRPDPLASAKDIREAFSRMAMDDETVALIAGGHTFGKAHGAASPE
MCLIYVNPEGGGRPDPLASAKDIREAFSRMAMDDETVALIAGGHTFGKAHGAASPE
KCIGAGPDGAPVEEGGLGWKNKCGTGNGKYTITSGLEGAWGTSPTOFTMYLLKULYKY
EWELHKSPAGAYWEPKRAMIVQDAHDPSVLHPLMMFTTDIALKVDPEYKKITTRFI
NDPKAFEQAFRAWNFKLHTRDMGPARXLGWEYPAESFIWOPLPADYTMIDGKDIR
SLKEOVMDLGIPASELIKTAWASASTFRYDYRGGNNGARIRLQPEINWEVNBPEKLK
KVLASITSGLQREWKROSDGRKYSLADLIVLSGNAALEDAARKGVELEIPFTPGRT
ASOGGTDVASFSVLEPTPGYLJDNKFFVNLLDMSTRWSRADKEDIPFTPGRT
ASOGGTDVASGSVLEPTPGYLJDNKFFVNLLDMSTRWSRADKEDIPFTPGRT
WRASSVDLIFSSNPELRAVAEVYASDDARNKFIHDFVKSWNKVWNSDRFDLNNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product-"EHEC-catalase/peroxidase"
/protein_id="CaA61429.1"
/db_xref="G1:1580761"
/db_xref="SPTREMBL:P77038"
/db_xref="SPTREMBL:P77038"
/db_xref="SPTREMBL:P77038"
/db_xref="SPTREMBL:P710MDMBLKFTQNFYYPETLDLTPLR
/HSPESNPWGANDFDYATRFQQLDMEALKFDTSQDWWPADVGHYGPFFTRMAM
HGAGTYRTYDGRGGASGGQORFEPLNSWPDNVNLDKARRLLMPVKKKYGSSISWGDLM
                                                                                                                        Direct Submission
Submitted (22-JUN-1995) W. Brunder, Universitaet Wuerzburg,
Institut fuer Hydiene und Mikrobiologie, Josef-Schneider-Strasse
10-97080 Wuerzburg, FRG
2 (bases 1 to 2407)
Brunder, W., Schmidt, H. and Rarch, H.
Erunder, W., Schmidt, H. and Rarch, H.
Astp, a novel catalase-peroxidase encoded by the large plasmid of
enterohaemorrhagic Escherichia coli 0157:H7
Microbiology 142 (Pt 11), 3305-3315 (1996)
                                                                          Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
Escherichia.
1 (bases 1 to 2407)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
 0157:H7 katP gene for EHEC-catalase/peroxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ij
                                                                                                                                                                                                                                                                                                            /strain-"EDD33"
/sub_species="serotype 0157:H7"
/db_xref="texon:562"
/cell_line="plasmid p0157"
119. .122
131. .2341
/gene="katp"
/gene="katp"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1081.4; DB Pred. No. 1e-311; 0; Mismatches
                                                                                                                                                                                                                                                                       Location/Qualifiers
1. .2407
/organism="Escherichia coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ų
                                        gene;
                                       katP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            б
                      X89017.1 GI:1580760
EHEC-catalase/peroxidase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           607
                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 72.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="katP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480 c
                                                   Escherichia coli.
Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                 Brunder, W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Simil
Matches 1082;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        527
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                              AUTHORS
TITLE
JOURNAL
                                                                                                                                                                              REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                  RBS
gene
                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                        77370
                                                                                       76950
                                                                                                                                                                                            77070
                                                                                                                                                                                                                                              77130
                                                                                                                                                                                                                                                                                                 77190
                                                                                                                                                                                                                                                                                                                                                    77250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           77430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                77550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  77610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     77670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77671 GGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCA 77730
                                                                                                                                                                                                                                                                                                                                                                                                                                1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAAACGCTGGGATTTGCTGGCGGA 1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGAGAAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCCTGACAACAAGCCTCTTGCA 1139
                                                                                                                                                                                                                     779
                                                                                                                 629
                                                                                                                                                                                                                                                                       839
                                                                                                                                                                                                                                                                                                                           899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTTATGTCAATCCTGAAGGCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIGCTGTGGCCAGTCAAGAAAAAAAACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATAACCGGGATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTT
                                                                             CCTCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACC
                                                                                                                                                                                                                                                                       TGGCACGGTGCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAG
                                                                                                                                                                                                                                                                                                                                                                             CAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATAAAAAAAACTCTTCCTGTTCTGATTCTTCTGGCGCTATCGGGGAGCTTTTCTACCGCT
                                                                                                                 GTAGCCGCTGATAAAAAGGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACT
                                                                                                                                                                                                                                                                                   GGAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGAC 1489
                                                              240
                                                                                     16891
                                                                                                                009
                                                                                                                                                                  099
                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                      780
                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                                                                                                                                                                           006
                                                                                                                                                                                                                                                                                                                                                                                                                               960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1440
                                                                                                                                        6951
                                                                                                                                                                                          77011
                                                                                                                                                                                                                                           77071
                                                                                                                                                                                                                                                                                                                                                                                                     77251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  77551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    77611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           77731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             77791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 6
ECEHECCTP
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                    윱
                                                                                                                                                                                          셤
                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                              쉽
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                    · ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
            à
                                                              ð
                                                                                     ద
                                                                                                              ò
                                                                                                                                     g
                                                                                                                                                               õ
                                                                                                                                                                                                                    å
                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
```

ö

466

9

526 120 586 180

121

셤

BCT 12-DEC-1996

linear

DNA

ďq 2407

ECEHECCTP

gene

gene

```
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       systemid="AaM84458.1"

/drotein.id="AaM84458.1"

/drotein.id="AaM84458.1"

/db_xref="G1:21957607"

/translation="MNHRPDIVMRAEDISMRFPGTLALDSVNYTVYRGKVNVIIGENG

AGKSTLAKILAGVQQQTSGOIYLNGGVVSIANTREAAALGIGMVHQELNLSENLNVAE

NIFLGREIGHGLKPINGAADENVTEOLMVRLDQVISPOEKVSHLKVGQQQLIETAKAL

RGAPLILLIDEPTSALSKTEVDVLERVIRELTROGVSIVYISHRLEELMAIGDYITIL

RDGRPQAEAAVKDIDVPWIVREMLGSDPVSSFLRPGFFPWERDENDYIINESGNT

VNNHYSLHVRAGEIVGITGLAGAGRPELFECLLGTQONYLGTVRLUGTVNNAKTSTAE

KIRRGMSLVPEDRKKAGIFPASSVACNLTISSLMRRLKHREAIWQESEVQVVAATIGE

LSIKVSSPDVEIGALSGGNQCKVIGRSLLTRPNILLLDEPTRGIDVGAKADVFEMNV

KLSEGGIGILESTSDLKEIMAVSDRILVMSNGKLTANLSRQSASESALVTASAQGFE"

//GROG="IDSC"
//OCCE="YOR"
//OCCE="YOR"
//TOTE"
//TOTE |
//TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /6030. 7175
/gene="rbsc"
/gene="rbsc"
/function="transport; transport of small molecules;
carbohydrates, organic acids, alcohols"
/note="residues 1 to 356 of 381 are 59.83 pct identical to
residues 1 to 348 of 354 from GenPept: >emb|CAC48738.1|
($4603643) probable sugar ABC transporter permease protein
[Sinorhizobium melllott]"
IAIITPSHDNPFFRAEAEGAKAKATELGYTTLVASHDDDVNKONQLIETAIARKAKAI
ILDBAGSDATIGPLKKAKAAGIPAELIDREINETGIAVSQIVSNNYQGAQLGAEKFYT
ILGGKGKYIELLGRESDTNAHVRSQGFUDVIDEBENBENDKWVAQQTANNSQTEAFNRMES
ILGANPDITGYISGNDTWALGAEAALKAAGRUDVVVVGFDGSDYVRDSIINNGHIKAT
VLOPGWAQAQMAVVQADQYLKTGKTGLEEKQLMDCVLIDENNAKNLNVFALKD"
3893. 4510
3893. 4510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //function-"putative transport"
//function-"putative transport: residues 1 to 344 of
/note="sugar (D-ribose?) transport: residues 1 to 344 of
/note="follow pot identional to residues 1 to 344 of 344
from GenPept : >ppl/AAD37310.1|AF135170_1 (AF135170) ribose
ABC transporter [Yersinia pestis]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="aam84459.1"
/db_xref="G1:21957608"
/db_xref="g1:21958"
/db_x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="hypothetical"
/protein_id="AaM84457.1"
/protein_id="AaM84457.1"
/db_xref="G1:21957606"
//tanslation="MRFNAFANA"
DYNOPPDRVAATIMARNVMPPANSNAISWOEWKQOOSOPAVGKNUGSRFVRTGKWVA
VETEGREGIIRLAIDGDEQVLQLGPIVKGNAIRDASFFIRFDDFKNQYRYGRALS
LRALQEVARDASWIGQQVEVLAAVTLTPTSLSNGVPLSLNKESH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transport
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /function="unknown"
/note="residues 1 to 205 of 205 are 100.00 pct identical
to residues 1 to 205 of 205 from GenPept:
>gb|AAD37311.1|AF135170_2 (AF135170) unknown [Yersinia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
/product="sugar (D-ribose?) transport system permease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product-"putative ATP-binding protein of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4510. .6033
/gene="y0873"
4510. .6033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4510. .6033
/gene="y0873"
                                                                                                                                                                                                                                                                                                                                                                                                                                                   3893. .4510
/gene="y0872"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7426. ..9193
/gene="y0875"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pestis]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein
```

gene

CDS

gene

```
/product-"hypothetical"
/product-"hypothetical"
/protein_id="AAM84461.1"
/db_xref-"di:2195761.1"
/db_xref-"di:2195761.1"
/db_xref-"di:2195761.1"
/db_xref-"di:2195761.1"
/translation-"MASIPRELIFRAVIIGNRGFFPSYLVSDARBDAQALFDRLGINII
MLNEGTPLGGVENWHDAKVQAELFRQHSEBIHGVVVILPNFGDEKSVSDAIRLSGLK
PVPLVQAEBEDALDKRGHATRRDSFCGKISLCNRLROWGIPFTLTKQHVCSLNSBIFSR
DVEQFVOLCRVVHARKVRVGAGGAETNRWTVRYSERLLENLGITVETLDLGSEVFFR
VANLSDNDIRVGEKLALLKANGDTSTIPQDKLHKMAKLFVVISEWIIANDIDTTAMQC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note-"residues 7 to 471 of 474 are 51.28 pct identical to residues 3 to 467 of 471 from GenPept : 
>9plAAD36032.1|AE001758_10 (AE001758) hypothetical protein [Thermotoga maritima]*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2312
                                                                                                                                                                                                         ţ
                                                                                                                                                                                                                                                                                                                                                                                        /product-"glycerol kinase"
/protein_id-"AAM84460.1"
/db_xref-"G1:21957609"
/translation-"MSTPIIIAIDEGTTNAKAIAVDRAGRVLAKASVPLQLEHPQPGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         728
                                                                                                                                                           /function="enzyme; central intermediary metabolism: Pool,
                                                                                                                                                                            multipurpose conversions.

//note="residues 6 to 490 of 495 are 40.36 pct identical residues 7 to 494 of 50.2 from E. coli Kl2 : B3926; residues 6 to 490 of 495 are 44.35 pct identical to residues 6 to 479 of 489 from GenPept : >qb|AAL42899.1| (AR009144) glycerol kinase 2 [Agrobacterium tumefaciens str. C58 (W. Washington)]*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2429 TATCAATAATAGATAGAATCTATCATATTAATAGGACTAACGAATTGTATTTCCAATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACTITIGIATACAACAIGCGAAITICCCITAAICCGGAGCIATICGTAIGAIAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2369 AATCATGTTAAAAATAGTTGCCTTTTAGTTAAAGGGGGACTTAT--ATATGTTAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 549 ACTCTTCCTGTTCTGATTCTTGCGCGCTATCGGGGAGCTTTTCTACCGCTGTAGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2311 ATCTTACCCGTACTAATAACTCTCGCCATTGTACATAATACACCTACGGCTTGGGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    669 TTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            609 GATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACTCCTCTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               429 TATTTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36.0%; Score 536.6; DB 1; Length 12268; 69.7%; Pred. No. 1.5e-148; 1ve 0; Mismatches 319; Indels 2;
'note="disrupted by frameshift"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="y0877"
/function="unknown"
                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transl_table=11
                          /gene="glpK"
/note="y0876"
9196.
                                                                                   /note="y0876"
9196. 10683
/gene="glpK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                       'pseudo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  740;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Loca
Matches
                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
```

셤 ò g ò g ŏ

```
/protein_id="AAD37311.1"
/protein_id="AAD37311.1"
/da_xref="611:5002120"
/translation="MRFRAISRAGALLMISAVLVACTVVDLDENGRPILPVDPNAVVS
DYNGTPDKVAATIWAKNVMPFANSNAISWGPVKQQOSQPAVGKNNGSRFYRFTGKVVA
DYNGTPDKVAATIKAAIDGPBQVLQLGPIYKGNAIRDASTFIRPDFKNGVQYAQLAKALS
LRALQEVARPDASWIGQQVEVLAAVTLTPTSLSNGVPLSLNKESH"
/gene="rbsb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="Mikkilpvlitlalvhntptawaaeapktdsfylpksldlsplr
lhntesnpyckdpfnyaQofkfuldleavkkdjktylfygdwyapdychyfgfpftrwaw
geggytriyogkgGadogooreplinswpdnanldrakthapikkygakiswgdla
ylfgyvaleswgfklcfraggreddwgsdlyywgagnkmlsdnbkldpkplaato
wgliyvnpegpngkpdpyaaakdireafarmamndeetyaliagghtfgkahgaaspe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PSHDNPFFKAEAEGAKARATELGYTTLYASHDDDVNRQNQLIETAIARKAKAIILIDNA
GSDATTGPLKKAKAACIPAFLIDREINETAIVASHDDDVNRQNQLIETAIARKAKAIILIDNA
GSDATTGPLKKAKAACIPAFLIDREINETGIAVSQIVSONVQGAQLCABKFVTLMGGK
GKYIELLGRESDTNAHVRSQGYHDVIDEHSDMKMVAQQTANWSQTEAFNRMESILQAN
PDITGVISGNDTMALGABAALKAAGRNDVVVGFDGSDYVRDSIINNONIKATVLQPG
MAQAQWAVVQADQYLKTGKTGLEEKQLMDCVLIDENNAKNLNVFALKD"
3221. 5434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGKSTLAKILAGVQQOTSGQIYLNGGKVSIANTREAAALGIGKVHQELNLSEBLINVAE
NIFLGREIGHGLKPINQAAGERVTEGLAVRLDOVISPGEKVSNLKVGQQQLIEITAKAL
RAGADILLIDEPSALSKTEVDVLFRVINELTRGGGSIVYISHLEELMAIGDYITIL
RDGREQABAAVKDIUPWHIVREMLGSDPVSSFLRPGRFGEPMREVEDYTLIRESGNIT
VONHVSLHVRAGEIVGIYGLMGAGRTELFECLLGTQQNYLGTVRLNGTVMNAKTSTAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MVNIYSMRRKIMKNTLLKSCLTAALISMAGVAGAASNGLIAIIT
                                                                                              Garcia, E., Nedialkov, Y.A., Elliott, J., Motin, V.L. and Brubaker, R.R. Direct Submission 1987. BBRP, Lawrence Livermore National Lab, 7000 East Ave., Livermore, C 9 94550, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="mnhrpdivmraedismrfpgtlaldsvnytvyrgkvnviigeng
encoded catalase-peroxidase of Yersinia pestis
181 (10), 3114-3122 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
/product="D-ribose_binding_protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(1034. .1651)
/note="ORF2; hypothetical protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                          transporter"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="antigen 5; KatP homolog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="catalase/peroxidase"
                                                                                                                                                                                                                                                                                                                                                                                    /note="ATP-binding protein"/codon_start=1
                                                                                                                                                                                                                                      /organism="Yersinia pestis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="AAD37313.1"
/db_xref="G1:5002122"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAD37312.1"
/db_xref="G1:5002121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="ribose ABC trai
/protein_id="AAD37310.1"
/db_xref="G1:5002119"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(1744. 2718)
/gene="rbsB"
                                                                                                                                                                                                                                                                                                       complement(<1. .1034)
                                                                                                                                                                                                                                                                                                                                              complement(<1. .1034)
                                                                                                                                                                                                                                                            /strain="KIM"
/db_xref="taxon:632"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3221. .5434
/gene="katY"
                                                                                                                                                                                                                                                                                                                         /gene="rbsA"
                                                                                                                                                                                                                                                                                                                                                                         /gene="rbsA"
                                                                                          (bases 1 to 13632)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RIRFGMSLVP"
                                                                                                                                                                                                                      .13632
      chromosomally
                        Bacteriol.
                                                                     10322012
                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                            gene
                                                                     PUBMED
                                                                                          REFERENCE
                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AF135170 l3632 bp DNA linear BCT 07-JUN-1999 Yersinia pestis ribose ABC transporter (rbsA) gene, partial cds; D-ribose binding protein (rbsB), catalase/peroxidase (katY), cytchrome c (cybC), cytcohrome b (cybB), dimethyl sulfoxide reductase subunit C (dmcC), dimethyl sulfoxide reductase subunit B (dmsB), dimethyl sulfoxide reductase subunit A (dmsA), and L-ribulose-phosphate 4-epimerase (araD) genes, complete cds; and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1472
                                                                                                                                                                                                                                                                                                                                                                                                                                      1712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        [ [bases 1 to 13632] Garcia, E. B. Motin, V. L. and Brubaker, R. R. Garcia, E., Nedialkov, Y. A., Elliott, J., Motin, V. L. and Brubaker, R. R. Molecular characterization of KatY (antigen 5), a thermoregulated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACATITGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGAT 1388
                                                                                                                                                                                                                                                                                                         1892
                                                                                                                                                                                                                                                                                                                                                                           GACTGGGAGTCGGACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGG 1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTATGTC 1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAA 1268
                               2012
                                                                                                                                                                                                      CCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGT 1028
                                                                                                                                                                             908
                                                                                                                                                                                                                                                                 968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGCTGGATATGGAGGCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGAT
                                                                                                                                                                                                                                                                   GAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGG
                                                                                                                                                                                GCCGGAACATACAGGACATATGATGGCCGGGGGGGCGCCCAGTGGTGGTCAGCAACGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1449 AAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGAC 1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Yersinia pestis.
Yersinia pestis
Bacteria, Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AF135170.1 GI:5002118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      unknown genes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tersinia.
                                                                                                                                                                                                                                                                                                                                                         696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1471
                                                      2131
                                                                                                                                                                                                                                                                                                                                                                                                 1891
                                                                                                                                                                                    849
                                                                                                                                                                                                                                                                     606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 8
AF135170
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
```

요

ŏ 셤 ò

셤

a ð

g ð 셤 ð

셤 ò g ò 셤

ò

g

ŏ

CDS

```
489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /train_langue_lanknown"
/product="unknown"
/product="unknown"
/protein_id="AaD37316.1"
/db_xref="G1:5002125"
/train_slation="MikTDMTYQDIVYKDTVYQDSVYQKIGLIGRYLGALFYCEPDSA
/train_slation="MikTDMTYQDIVYKDTVYQDSVYQKIGLIGRYLGALFYCEPDSA
ECRDIVYQLRNGYWAAEWPYCGADELMPIATLLAAQSDOYQSIAHQSAAAPLAETLE
EAWQRLFIGPYALPAPPWGSVYLDKDWVLFGDSTLKLRNWMQQRHVEVTLKQQEPEDH
FGLLWMMAANLAEHQPYDLPVLLADHILPWSYRYIALLQSDAGHPFYGGLAQLTTLTL
AHWQHELQYTPAGVELXR
complement(7685. .8845)
/gene="dmsC"
complement(7685. .88545)
                                                                ENPEEFKWAFARÄWFKLTHRDMGPAARYLGDEVPKETFIWODPLPAANYKMIDSADIS
ELKKTLKTGLEDTKLIKTARAASASPERGDRGARIRIAPQKOWPVNDPAELH
SVLAALAEVONNFNNDSDGKVSLSDLIVLGGNAALBDAAKKAGYSISPEPFGRTD
ASQEETDVSSFAVLEPTADGFRNYYDAKRNTLSPIASLIDRAAKLELTVPEMYLIGG
IRVLDVNSGGSKAGYLTNTPGQLNNNFFVNLLDMSTKWTKSPKAEGYFDGYDRKTGKL
KWTASSVDLVFGSNPELRAVAEVYASDDAKEKFVHDFTKVWEKVMNLDRFDIKNN*
5511. . 5894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MRKIPIIAGVESLLITSCTFAASLQDDMNILIANKGIVSSSTDT
KVITSSLEKMRNAALDAQKAIPPKLEGKAEDSPEIKDYRHGFDLLIEQIDKTKQWAEE
GNIQEVKKSVGEVINIRNTYHSRYR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="cytochrome b"
/protein_id="AAD37315.1"
/db_xref="G1:5002124"
//tanslation="MHKKYSCLQ1GIHWLVLLLVIIAWSSIELRGFAPRSYQPWMKMI
#FSCGTAILVLMMTRILIQLRYPTPPIVPRPSPMIVGLAHVGHWVIYLLFIALPIIGI
ALLYCRGSSWTARGLIAPHAEQANFDLADTLRAYHLLANMSYFVIGHHALAALLHHY
VLKDWTLLRMMPKRRG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="mossification" //translation="mossification" //trans
KCLGAAPGEAGLEQQGLGWANKCGSGNGKDT1TSGLEGAWTTDPTHFTWQYLSNLYKH
EWVLTKSPAGAWQWKPKNAANVVPDATDPTKFHPLAMFTTD1ALKVDPEYKKITTRFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     coli cytochrome b-561"
                                                                                                                                                                                                                                                                                                                                                                                                                                           c-562"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="dmsC"
/note="similar to Escherichia coli DMSO reductase"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="similar to Escherichia coli DMSO reductase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ້ວ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
/product="dimethyl sulfoxide reductase subunit
/protein_id="AAD37317.1"
/db_xref="GI:5002126"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product-"dimethyl sulfoxide reductase subunit
/protein_id-"AAD37318.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                           to Escherichia coli cytochrome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="ORF7; hypothetical protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     to Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /evidence=not_experimental/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="cytochrome c"
/protein_id="AAD37314.1"
/db_xref="G1:5002123"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(8547. .9164)
/gene="dmsB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(8547. .9164)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (6829.
                                                                                                                                                                                                                                                                                                                                                               5511. .5894
/gene="cybC"
/note="similar t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6042. .6572
/gene="cybB"
/note="similar t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                     /gene="cybc"
5511.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6042. .6572
/gene="cybB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="dmsB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HMTVGMAVGG
                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
```

CDS

```
/translation-"MTTQYGFYIDSSRCTGCRTCELACKDFRNLSPDVSFRRIYEYAG
GDWQQDNGTWHQNVPAYYLSIACNHCSDPACTKVCPSGAMHKRDDGFVVVNEDICIGC
RYCHWACPYGAPQYDAEKGHWTRCDGCYERVAVGKKFICVDSCPLRALDMAPIDELRE
KYGDIAEIAPLPAAHFTLPNIYLKPNANSRPVRDTTGHLANPKEV"
complement(9176. .11647)
                                                                                                                                                                               /transl_table=11
/product="dimethyl sulfoxide reductase subunit A"
/product="dimethyl sulfoxide reductase subunit A"
/protein_id="AAD37319.1"
/db_xref="fg1:5002128"
/translation="MQLSGNLMKETNESRLLTTGVTRRKLVOTTLVGGLAMATGAFSL
PFSRTARAVQSALNPTSANDGKVIWSACTVNCGSRCPLRMHVADGEIKYVETDNTGDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="arab"
complement(12089. .12859)
/gene="arab"
/note="arab" to Escherichia coli ribulose epimerase"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACTITITGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATAAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACTCCTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTACACACCCTGAATCAAATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3353 TIACATAATATAGAGTCCAATCCTTACGGAAAGGATTTTAATTATGCTCAACAGTTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGCTGGATATGGAGGCTCTGAAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 429 TATTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          549 ACTCTTCCTGTTCTGATTCTTCGGGGCTATCGGGGGAGCTTTTCTACCGCTGTAGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3233 ATCTTACCCGTACTAATAACTCTCGCCATTGTACATAATACACCTACGGCTTGGGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                               Escherichia coli DMSO reductase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 13632;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 536.6; DB 1;
Pred. No. 1.5e-148;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches 319;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(12089. .12859)
                                                                                                         complement(9176. .11647)
                                                                                                                                          /note="similar to
                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36.0%;
69.7%;
                                                                                          /gene="dmsA"
                                                                                                                           /gene="dmsA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best_Local Similarity 69.7
Matches 740; Conservative
```

셤 à 셤 à a ŏ 셤 ò

us-09-674-277-1.rge

```
(URL, http://www.sanger.ac.uk/Projects/Y_pestis/).
Location/Qualifiers
1. .220050
                                                                      /strain="co92"
/db_xref="taxon:632"
/hote="blowar: Orientalis"
complement(191. .715)
/gene="YP03215"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref-"SPTREMBL:Q8ZC13"
                                                          /organism="Yersinia pestis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(962. .1519)
/gene="YPO3216"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(962. .1519)
/gene="YPO3216"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="YP03215"
/note="PF
                                                                                                                                                                                        complement(191. .715)
/gene="YPO3215"
/EC_number="2.7.1.71"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .787. .2002
'gene="YPO3217"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1787. .2002
/gene="YPO3217"
                                                                                                                                                                      /note="aroL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                              CDS
                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                [ (bases 1 to 220050)
Parkhill, J., Wren, B.W., Thomson, N.R., Titball, R.W., Holden, M.T.G., Prakhill, J., Wren, B.W., Thomson, N.B., Churcher, C., Mungall, K.L., Brentice, M.B., Sebaihia, M., James, K.D., Churcher, C., Mungall, K.L., Baker, S. Basham, D., Bentley, S.D., Brooks, K., Cerdeno-Tarraga, A.M., Fellillingworth, T., Cronin, A., Davies, R.W., Davies, P., Dougan, G., Feltwell, T., Hamilin, N., Holtroyd, S., Jagels, K., Leather, S., Karlyshev, A.V., Moule, S., Oyston, P.C.F., Quail, M., Rutherford, K., Sammonds, M., Skellon, J., Stevens, K., Whitehead, S. and Barrell, B.G. Genome sequence of Yershia pestis, the causative agent of plague Nature 413 (6655), 523-527 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1329 ACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGAT 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1148
                                                                                                                                                                                                                                                                       3832
                                                                                                                                                                                                                                                                                                                                                                                 1209 AATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAA 1268
                                                                                                                                                                                                                                                                                                                                                                                                      1328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Notes: Details of Y. pestis sequencing at the Sanger Centre are available on the World Wide Web.
                                                                                  1028
                                                                                                    AATGTIGCCCTIGAAICCAIGGGAITIAAAACGCIGGGAITIGCIGGCGGAAGAAGAI 1088
                                                                                                                                                                                                                                                                                                          Yersinia pestis
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCAGICAAGAAAAATACGGCTCCAGIATTTCCTGGGGAGACCTGAIGGTCCTGACTGGT
                                                                                                                                                                              GACTGGGAGTCGGACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGG
                                                                                                                                                                                                                                                       GCTTTTTCACGTATGGCCATGGATGAGGAGACTGTGGCCCCTGATCGCGGGAGGGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
Submitted (04.0CT-2001) Submitted on behalf of the Yersinia
sequencing team, Sanger Centre, Wellcome Trust Genome Campus,
Hinxton, Cambridge CB10 1SA E-mail: parkhill@sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AJ414156 220050 bp DNA linear BCT 06-Yershia pestis strain CO92 complete genome; segment 16/20. AJ414156 AL590842 AJ414156.1 GI:15981150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1449 AAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGAC 1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4133 AAGGACACGATAACCAGTGGGTTGGAAGGGGCATGGACAAC 4173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 220050)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Yersinia pestis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ersinia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11586360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Parkhill
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4013
                                                                                                                                                                                                                                       1089
                                                                                      696
                 606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 9
AJ414156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
```

g

g ŏ 원 ŏ 셤 ò g ò 셤

ŏ

```
Anote—"Similar to Rhizobium meliloti phospholipid
N-note—"Similar to Rhizobium meliloti phospholipid
N-methyltransferase PmtA TR:AAG10237 (EMEL:AF201699) (200
aa) fasta scores: E(): 1.1e-07, 25.9% id in 185 aa, and to
Bradyrhizobium japonicum PmtA protein TR:09LCT2
(EMBL:Y09633) (199 aa) fasta scores: E(): 0.0677, 24.2% id
in 178 aa, and to Klebsiella pneumoniae hypothetical 22.7
the protein TR:087755 (EMBL:AJ011907) (196 aa) fasta
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="putative methyltransferase"
/product="putative methyltransferase"
/protein_id="CAC92451.1"
/db_xxef="C1:15981152"
/db_xref="sprakb1:082C14"
/translation="MLNIVRNFKSOFSYLORFIASPRTVGSLVPSSPWLCQAMLNQI
/translation="MLNIVRRILESHRANSSLQAYEQPHFYHALHQLKDSRLQIADR
SARQYLODGYDVPCCLPLIASIPTKISLRILGOTQQRLRARNGYLVLFQYSHLSSESLLS
RYFNWRKIRVVRNFPPALVYICHPN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="migtdygivvanvimaetnddrgsischffigsspnahplnvd
IKNIASPHVLSIVACSIKKAAAKMRLS"
                                                                                                                                                                                                                            /product="shikinate kinase II"
/product="shikinate kinase II"
/protein_id="CaC92450.1"
/db_xref="GI:15981151"
/db_xref="sprexbi:082015"
/translation="wTQTIFWVGARGAGKTTIGKALAQALGYRFVDFDLFMQOTSQMT
VARVVESGEWOOFRLRESMALQAVTAPKTVVATGGGAVLSSENRAFMRDHGRVIYLRA
VARAVLAEDPERGRPSLTGKPIVEEILDVLASREALYQDVAHHVLDGTQTPSLV
VEQILQMLTGEWVR.
/note="Similar to Escherichia col; shikimate kinase II /note="Similar to Escherichia col; shikimate kinase EC(): 15e-31, 55.4% id in 168 aa, and to Erwinia chrysanthemi shikimate kinase AroL or AroM SW:AROL_ERWCH (P10880) (173 aa) fasta scores: E(): 0, 63.7% id in 168 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SKI, Shikimate kinase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="no significant database hits"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note-"Pfam match to entry PF01202 score 245.00, E-value 1.1e-69" complement(470 .544)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="hypothetical protein"
/protein_id="CAC92452.1"
/db_xref="G1:15981153"
```

Thu

CDS

```
GCGGGAACCTACCGCATATATGATGGCCGTGGTGGTGCCGATGGCGGGCAGCAAGATTT 122107
                                                           /translation-"MNLLEHMCKAAKOASWOLAMLSTAKKNOALAVIANLLESESQTI
LQANERDMAAARESGMSEALLDRLLLTPARLAAIANDVRQVCRLNDPVGRVIDGSLLD
SGLKLERRRVPLGVIGVIYEARPNVTIDVASLCLKTGNAVILRGGKETHYTNQATVNV
                                                                                                                        IQRALEQCGLPAAAVQAIESPDRQLVNELLRLDRYVDMLIPRGGASLHKICREGSTIP
VITGGIGVCHTFVDENADFERALLVIENAKIQRPSACNSLETLLVHQAVAKTFLPLLS
ARMHAFGYTLHASPLAMPYTADGRAKVVAVEAADYDDEWLSLDLNVDIYTDIDAAIDH
IREHGTSHSDAILYSELSHAEYFVRAVDSSAVYVNASTRFTDGGQFGLGAEVAVSTQK
LHARGPMGLDALTTYKWIGYGDDLVRS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121928 ACACTGGATCTTGAAGCAGTAAAGAAGATATAAAAACAGTTCTTACCACATCACAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121630 TATCAATAATAGATAGAATCTATCATATTAATAGGACTAACGAATTGTATTTTCCAATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTACACAGCCCTGAATCCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGCTGGATATGGAGGCTCTGAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACTCCTCTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTT
                                                                                                                                                                                                                                                                      /note="Pfam match to entry PF00171 aldedh, Aldehyde dehydrogenase family, score -217.90, E-value 0.00013" (complement(4776 . 4841) /gene="YP03221"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATTTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  549 ACTCTTCCTGTTCTGATTCTTCGGGGCTATCGGGGAGCTTTTCTACCGCTGTAGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAT
                                                                                                                                                                                                                                                                                                                                                           /note="PS01223 Gamma-glutamyl phosphate reductase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 220050;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 3e-148;
0; Mismatches 319;
                                       /db_xref="SPTREMBL:08zC09"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 536.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="proB"
complement(5823. .6926)
/gene="YPO3222"
                                                                                                                                                                                                                                 complement(4572. .5744)
                                                                                                                                                                                                                                                                                                                                                                                 signature."
complement(5823.
/gene="YPO3222"
                                                                                                                                                                                                                                                         /gene="YP03221"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             36.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Simi
Matches 740;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22168
                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                             YafE SW:YAFE_ECOLI (P30866) (207 aa) fasta scores: E(): 0, 65.1% id in 169 aa, and to Pseudomonas aeruginosa YafE or PA3119 TR:087011 (EMBL:U93274) (187 aa) fasta scores: E(): 0, 55.2% id in 172 aa
                                                                                                                                                                                                                                                                          /db xref="Spreadalth:082C12"
/db xref="Spreadalth:082C12"
/translation="WQMAADKKLTNIEIQQGLAESLPFADQSFDIVISRYSAHHWHDV
GACALREWKRTLRPGGKVIFMDNVSPGHPVLDIYLQTVEVLRPTSHVRNYSPGFWLSLF
TEGGLVINEVTSDRLYLEFSSWVARMRTPAHFATAIREFQKLASDGVINHYALQADGS
FTSDIMMIVANRD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref-"SPTREMBL:082C10"
/db_xref-"SPTREMBL:082C10"
/translation="MGPVSETSKEGFVKKNKLAICAILRDLGKNDPAVMVTHARGGFI
STILD10PETNGFIFPDFGSVENENVLLAGABOLITIVEPTGARIEFTCNKLKHVFTLS
LPAESSAIPPOLYFTGRREYFRVSIPOMPAYCSGKFPDGTQXYTLADISLGGMGLY
AMKGSEFPLGGCSVLRDAAVDLGGFGLFKLDLQFIRALDKQVVNNKGEMLTVQRLSFR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="putative membrane protein"
/protein_id="CaC92454.1"
/db_xref="GI:15981155"
/db_xref="SPTREMEL:082C11"
/translation="MEGSYMOISEEBSIRRITNEKNAVGHSAKWVAIISAVYFIIMLF
XRHBLGVLTLAGGIFLVSFTTWMKKRQKVKSYKNQLQQIEEDKTV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(3468. .4226)
/gene="YPO3220"
/note="Sinilar to Escherichia coli hypothetical protein
YCGR SW:YCGR ECOLI (P76010) (244 aa) fasta scores: E(): 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               phosphate reductase ProA SW:PROA_SERMA (P17857) (417 aa) fasta scores: E(): 0, 85.1% id in 417 aa, and to Escherichia coli gamma-glutamyl phosphate reductase ProA SW:PROA_ECOLI (P07004) (417 aa) fasta scores: E(): 0, 2,3% id in 417 aa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          //ore="one of 2 probable transmembrane helices for YPO319 by TMHMM2.0" complement(3151, .3216) /gene="YPO3219"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /hote="one of 2 probable transmembrane helices
for YPO3219 by TMHMM2.0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
/product="gamma-glutamyl phosphate reductase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="conserved hypothetical protein"
/protein_id="CAC92455.1"
/db_xref="G1:15981156"
                                                                                                                                                                                                                             protein'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="no significant database matches"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FLRLSPIQEKGLQRAIFELEKQQTAKARKFQEGL
complement(4554. .5813)
                                                                                                                                                                                                                          /product="conserved hypothetical
/protein_id="CAC92453.1"
/db_xref="G1:15981154"
                                                                                                                                                                                                                                                                                                                                                                                            complement(3016. .3285)
/gene="YPO3219"
complement(3016. .3285)
/gene="YPO3219"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(3088. .3138)
/gene="YPO3219"
                                   complement(2249. .2770)
/gene="YPO3218"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(4554. .5813)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(3468. .4226)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="YPO3221"
/EC_number="1.2.1.41"
                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene-"YP03220"
                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="proA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                   gene
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
```

CDS

121867

728

668

121987

788

122047

968

CDS

848

121689

1; 488

Gaps

121747

809

548

ð g à ç

```
1427 TAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTC 1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCAGATGGGACTTATTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGC 1246
GAASGKYLGPAPEAAGIEEQGFGWKNSYGSGKGKDTITSGLEGAWTVTPTHWSHNYLO
NLFNENWYKTKSPGGAIOWYPENSNASSAWYDDAFDSKRHAPVMLTTDLALKFDPYS
KTARRELDINKEEDDAFARWFKLIHRDWGPRSRYLGSLYPKEAMIWODPYDYKL
VDANDIANLKGKILNSGLTTSELLYKTAWASASTFRGFDRGGANGBARIRLAPOKDWFA
NDPQELAKVLKTLESIQNNFNNAQADGKKISLADIYLGGWARIRGAARGAGYDIIVP
FTGRRUDATGOMTOWRSFEYLEPKADGFRNIPDFANINGFPEMLVEKASLIKLSVPEM
FTGLYGGGMRVLANNTGONGYGYPTDRGGTLNNDFFINLLSMSTEWKSSETEGIYEFSPE
RKTGKLKWKATSVDLIFGANSELRAVBRATADDAKEKFIQDFINAWYKVWTADRFDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGA 1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1247 ITCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          890 TGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cegreectrocaecetrocecceccaaaacaecreecceGaraareccaarcreeaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCTCTIGCAGATAA---CCGGGATAAAAACGGGAAACTTCAGAAAACTCTGCCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                            TCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCTGACAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGCCTGGAAAGTAAGCGCCAGGATAAAGATGGAAAACTTGAAAAACCGCTTGCTGCGAC
                                                                                                                                                                                                                                                                                                     cearcitageceecreeceaacecaareceacriceaareceareegreaaaarreaa
                                                                                                                                                                                                                                                                                                                                TTCTACCGCTGTAGCCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACT
                                                                                                                                                                                                                                                  GGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGA
                                                                                                                                                                                              .,
                                                                                                                                                                  Length 2587;
                                                                                                                                                                                               Indels
                                                                                                                                                                    Score 384.8; DB 1;
Pred. No. 2.6e-103;
0; Mismatches 302;
                                                                                                                               641
                                                                                                                               611 g
                                                                                                                                                                       25.8%;
65.8%;
                                                                                                                 KAANANINS"
                                                                                                                              551 c
                                                                                                                                                                                    1 Similarity 65.8 592; Conservative
                                                                                                                                 784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          871
                                                                                                                                                                        Ouery Match
Best Local S:
Matches 592
                                                                                                                                                                                                                              590
                                                                                                                                                                                                                                                                                  650
                                                                                                                                                                                                                                                                                                            331
                                                                                                                                                                                                                                                                                                                                        710
                                                                                                                                                                                                                                                                                                                                                                391
                                                                                                                                                                                                                                                                                                                                                                                            770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                571
                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                        임
                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                              요
                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                   /translation="mekriteleaaftlaispsifpnyahaqedkprinqywwpkmld
LSplkqpnatsnpwgekfnyaeefnsildlanyiedkklatsodwwpadygnygple
Trwshyaaaftyriyobrgabagegyprapqdnyamdnaldkarkllmpikqxrgkis
Wadliviaagnyambsakfkriigfaggredaafekininwgpegkwleskrodkogklek
Plaatywgliyvnpegpngvpdplaaaekiretegrwamndeetvaliagghafkth
                                                                                                                                                                                                                                                                                     1448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (10-SEP-1998) Junko Amemura-Maekawa, National Institute. of Infectious Diseases, Department of Barteriology; Toyama 1-23-1, Sinjuku-ku, Tokyo 162-8640, Japan (E-mail:jmaekawa@nih.go.jp, Tel:81-3-2585-1111, Pax:81-3-5285-1163)
Location/Qualiflers
1. 2587
/organism="Legionella pneumophila"
/strain="AMMII"
/ALA AMMII"
                                                                                                                                                                                                                                                                                                                                                                                                                                        06-AUG-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Legionella pneumophila (strain:AM511) DNA.
Legionella pneumophila;
Bacteria; Proteobacteria; gamma subdivision; Legionellaceae group;
Legionellaceae; Legionella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   novel periplasmic catalase-peroxidase KatA
                                                                               GACTGGGAGTCGGACTGGTATACTGGGGCCTGACAACAAGCCTCTTGCAGATAACCGG
                        AATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAA
                                                                                                                                                                         GCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGCAT
                                                                                                                                                                                                                                 ACATITGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGAT
                                                                                                                                                                                                                                               catalase-peroxidase, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Amemura-Maekawa, J., Mishima-Abe, S., Kura, F., Takahashi, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                        BCT
                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEMS Microbiol. Lett. 176 (2), 339-344 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="catalase-peroxidase"
/protein_id="BAA78342.1"
/db_xref="GI:4996128"
                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Amemura-Maekawa, J. and Watanabe, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       203. .2452
/gene="katA"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Identification of a nov
Legionella pneumophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="katA"
203. .2452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .2452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 2587)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Watanabe, H
                                                                                                                                                                                                                                                                                         1389
                                                                                                                                                                                                                                                                                                                     122588
                                                                                                                           1209
                                                                                                                                                                               1269
                                                                                                                                                                                                                                     1329
                                                                     1149
                                                                                                                                                     122408
                                           122288
                                                                                               122348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 10
AB017595
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                              ŏ
                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                         Óλ
                                                                                               d
                                                                                                                                                     셤
```

1426

1107

1047

1186

1069

949

709 390 769 450 829 510 889

```
ECIS91TP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3231
                                                                        650
                                                                                                                                                                                                                                                                                                                                              830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 12
ECIS91TP/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
SOURCE
                              셤
                                                                        ò
                                                                                                           셤
                                                                                                                                                               ò
                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TEAL AT 11 OF THE TREET OF TREET.
                                                                                                                                       04-DEC-2000
complete
                                                                                                                                                                                                                                                                                                                                                                                                                katA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ţ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FTPGRTDATQGMTDVKSFEVLEPKADGFRNYPDKSNNMSPPEMLVEKASLLKLSVPEM
TVLVGGMRVLNANTGQNQYGVFTDKPGTLNNDFFINLLSMSTEWKKSSETEGIYEGYE
RRTGKLKWKATSVDLIFGANSELRAVAEAYATDDAKEKFIQDFINAWVKVMTADRFDI
NDPQELAKVLKTLESIQNNFNNAQADGKKISLADLIVLGGNAAIEQAAKQAGYDIIVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                           group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 (bases 1 to 5249)
Bandyopadhyay, P. and Steinman, H.M.
Direct Submission
Submitted (09-JUN-2000) Biochemistry, Albert Einstein College of
Medicine, 1300 Morris Park Avenue, Bronx, NY 10461-1602, USA
Location/Qualifiers
1. .5249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sednence
                                                                                                                                                                                                                                                                                                                                                                                                                the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                    gamma subdivision; Legionellaceae
                                                                                                                                                                                                                                                                                                                                                                                                             of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="compared to Legionella pneumophila katA
GenBank Accession Number AB017595"
/replace="g"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="compared to Legionella pneumophila katA
GenBank Accession Number AB017595"
                                                                                                                                       5249 bp DNA linear BCT pneumophila catalase-peroxidase (katA) gene,
                                                                                                                                                                                                                                                                                                                                                                                                             cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25.8%; Score 384.8; DB 1; Length 5249; 65.8%; Pred. No. 3.1e-103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                              Legionellaceae; Legionella.

1 (bases 1 to 5249)

Bandyopadhyay, P. and Steinman, H.M.
Catalase-peroxidases of Legionella pneumophila:
gene and studies of KatA function
J. Bacteriol. 182 (23), 6679-6686 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /replace="c"
2386. 4635
/gene="katA"
2386. 4635
/gene="katA"
/note="KatA; localized in periplasm"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches 302;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product-"catalase-peroxidase"
/protein_id="AAG37106.1"
/db_xref="GI:11528085"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:446"
2225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ь
                                                                                                                                                                                                                                                                      Legionella pneumophila.
Legionella pneumophila
Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                              GI:11528084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KAANANINS"
1058 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                     AF276752
Legionella p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                      AF276752
AF276752.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11073912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               592;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Si
Matches 592;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                          DEFINITION
                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                           RESULT 11
AF276752
                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                            윱
```

590 TICTACCGCTGTAGCCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACT

ð

```
1009
                                                                                                                                                                                                                                                                                                                                                                                                                                               1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1486
                                                                                                                                               2633
                                                                                                                                                                                                               2693
                                                                                                                                                                                                                                                                                                                               3350
                                                                                                                                                                                                                                                              TGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCTGACAACAA 1129
                                                                              2573
                                                                                                                                                                                                                                                                                                                949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-JUL-2002
                                                                                                                                                                                829
                                                                                                                                                                                                                                               889
                                                                                                               769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
Escherichia.
1 (bases 1 to 1829)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCCAG
                                                                                                                                                                                                                                                                                                                                                                              AGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                           1010 CCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                           2874 TIGITGGTACTIGCTGGAAATGTTGCGATGGAATCTATGGGCTTCAAGACCATTGGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1130 GCCTCTTGCAGATAA---CCGGGATAAAACGGGAAACTTCAGAAACCTCTTGCCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2994 ATGGCTGGAAAGTAAGCGCCAGGATAAAGATGGAAAACTTGAAAAACCGCTTGCTGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1247 TTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1307 GGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1367 AIGIATIGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGGATGGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1427 TAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTC
                                              GGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGGCTGATTTTGA
                                                                                                               890 TGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1187 GCAGATGGGACTTATTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1829 bp DNA linear BCT (plasmid pSU2911 including tnpA gene for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Escherichia coli plasmid pSU2911 including transposase and ORF121.
X17114 S79575
X17114.5 G1:21038833
insertion sequence; trpA gene; transposase. Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
```

```
ä
                                                                  /translation="MLPRFADIFOGGNRWLNWLEKQPEGSVRPVVTESVTKIMACGTT
LMGYTQWCCSSPDCCHTKKVCFRCKSRSCPHCGVKAGAQWIQYLLSLVPDCPWQHIVE
TLPCQYWSLYFHNRWLLAEMSRIAADVYLLEICHQTVDVEPGIFTVIHYWRDQWHPHI
BLSTFAGGGVYSCHTWRNLLFYRNWSWMRYRITRLSRKYPELVIFDELAFORGNSKR
DHNCFLDTHYRRGWYNYISRYMDNATHYAVYRGSYLKKPPVPWSRLEHYAGOEIGLR
YNSHRTKREEYLLMSGDEFWERFSWHVADKGFRWYRYGFLSPVKRLLEEVVYVITE
TVRKTAMQIRWRGMYQRLLKVDPLKCILCGSQMRFTGLKRGYRLAEHTAMBRLARQO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PAT 14-FEB-2001
                                                                                                                                                                                                                                                                 i,
                                                                                                                                                                                                                                                                                                                                                                                                                182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    302
                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                                                                                                                                                                                                                                                                                    507
                                                                                                                                                                                                                                                                                                                                                                                                                                              447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  303 ACCCTTCGTCATCAACACGTACAAACCAGAAGACCAGCTTTTTGTTTCTGACATCCACAA 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            567
                                                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                             243 CGCTGATACCGGCAAGAATGGTCGCAAACTCCCGCTCCGTGCAGCGGGCTATTTCAGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                    63 ATTITIGICACAGACTCAATGACTACCGGACGCACTGAACCTTCCGGTTGTTTCTCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGGGGGAACTCCGTCCGGCCAGTGAACCGTGCCACACTCCGGGCAGTACATGCCGCCGG
                                                                                                                                                                                                                                                                                               4 CAGTCCGGAGATGAA-AGCACCACTGTGTGTACCCCATCAGCGTGGTCCCGCAGGCCATG
                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                  ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 2238;
                                                                                                                                                                                                                                 24.7%; Score 368; DB 1; Length 1829; 96.0%; Pred. No. 2.6e-98; ative 0; Mismatches 15; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGAAGGGAATATTCAGGTCTGCGCAGCACTCAACGGCATCGTCA 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 2238)
Robertson,D.E., Sanyal,I. and Adhikary,R.S.
Catalases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 357.6; DB 6;
Pred. No. 3.5e-95;
0; Mismatches 264;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Patent: US 6074860-A 7 13-JUN-2000;
Location/Qualifiers
1. .2238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2238 bp
Sequence 7 from patent US 6074860.
AR098264
AR098264.1 GI:12807521
/codon_start=1
fransl_table=11
/product="transposase"
/protein_id="cab30457.1"
/db_xref="G1:21038834"
                                                                                                                                                                                           437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="unknown"
                                                                                                                                                                                             ь
                                                                                                                                                                                           539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24.0%;
66.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          545 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 24.0
Best Local Similarity 66.7
Matches 542; Conservative
                                                                                                                                                                                           429 c
                                                                                                                                                                                                                                      Query Match
Best Local Similarity 96.0
Matches 388; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ಗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unknown
                                                                                                                                                                                              424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AR098264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                   엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation-"marsarprkrkpapqrsklpryvvklhpddffdeedaevlrfd
fddaveccadlnipffvdagnkklvfwfvryddegypeiarcterefatilagisagg
                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
Submitted (23-APR-2002) Garcillan-Barcia M.P, Biologia Molecular,
niversidad de Cantabria, C/ Herrera Oria s/n, Santander, Cantabria,
                                                                          2 (bases 1 to 1829)
Mendiola,M.V. and de la Cruz,F.
IS91 transposase is related to the rolling-circle-type replication proteins of the public family of plasmids
Nucleic Acids Res. 20 (13), 3521 (1992)
                                                                                                                                                                                                                                                                                                                      Direct Submission
Submitted (27-2000) F. de la Cruz, Departmento Biologia
Submitted (27-20100) F. de la Cruz, Departmento Biologia
Molecular. Un., Cartebria, Facultad Medicina, C/Cardenal Herrera
Oria s/n, 39011 Santander, SPAIN
revised by [5]
Chases I to 1829)
Garcillan-Barcia,M.P.
                                                                                                                                                                                                                        Submitted (06-Nov-1989) F. de la Cruz, Departmento Biologia
Molecular. Un., Cantabria, Facultad Medicina, C/Cardenal Herrera
Oria s/n, 39011 Santander, SPAIN
 Mendiola,M.V., Jubete,Y. and de la Cruz,F.

DNA sequence of IS91 and identification of the transposase gene
J. Bacteriol. 174 (4), 1345-1351 (1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7. 2002 this sequence version replaced g1:20376803
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transI_table=11
/product="hypothetical protein"
/protein_id="CAC14584.1"
/db_xref="GI:11071485"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Escherichia coli"
/db_xref="taxon:562"
/plasmid="pSU2911"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="SPTREMBL:Q9F440"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |. .1829
/insertion_seg="IS91"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MYCPECGTVHWPDGVPPPF"
303. .1641
303. .1641
303. .308
/gene="tnpA"
326. .31
/gene="tnpA"
372. .378
/gene="tnpA"
396. .401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "ORF 121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="ORF 121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38. .43
/note="ORF 121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             50. .65
/note="ORF 121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'note="ORF 121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note="ORF 121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="tnpA"
454. .1641
/gene="tnpA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .55
/note="r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .454
                                                                                                                                                                                                                                                                                                          de la Cruz, F.
Direct Submission
                                                                                                                                                                                                     de la Cruz, F.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39011 SPAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         on May 20,
                                                                                                                                                                        1321417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -35_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -10_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -10_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -35_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -10_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -35_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -35_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -10_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
JOURNAL
           AUTHORS
TITLE
JOURNAL
MEDLINE
                                                                                                                                                          MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
FEATURES
                                                                     PUBMED
                                                                                      REFERENCE
                                                                                                                                              JOURNAL
                                                                                                                 TITLE
```

```
/product="thioredoxin"
/protein_id="AAM04308.1"
/db_xref="G1:19914791"
/tanslation="MDENTYFEIEDATWGQQVEDSERPVIVMFYSPTCPYCKAMEPYF
AEYAKERRAAIFEATHIIVNPWTARRYGVGGTPTFKFFCHGKPVWEQVGQIYPSILG
NAIRDMIQYGEECIRKTTPVGQDITGYV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /protecin_id="AbMO4400 il
/Protecin_id="AbMO4400 il
/db_xref="G1:19914793"
/db_xref="G1:19914793"
/db_xref="G1:19914793"
/db_xref="G1:19914793"
/db_xref="G1:19914793"
/db_xref="G1:19914793"
/db_xref="G1:1991479"
/db_xref
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="myyvpelnngalnlawylcmyyvasyysirnvelkmekilipyi
LSFTIANLSVLLYFNEFVFDLGNLLEARHLIPIGSLILGNSLRGNIVGKNLTRISAEM
KTDTFTASLGASRYEALMPYTGNAFTPHSGLRSPILQLQGLSSFPG"
            Tirrell, A., Ye, W.,
  Linton, L., McEwan, P., McKernan, K., Talamas, J., Tirrell, A., Ye, W. Zimmer, A., Barber, R.D., Cann, I., Graham, D.E., Grahame, D.A., Guss, A., Hedderich, R., Ingram-Smith, C., Kuettner, C.H., Krzycki, J.A., Leigh, J.A., Li, W., Liu, J., Mukhopadhyay, B., Reeve, J.N., Smith, R., Springer, T.A., Umayam, L.A., White, O., White, R.H., de Macario, E.C., Ferry, J.G., Jarrell, K.F., Jing, H., Macarlo, A.J.L., Paulsen, I., Pritchett, M., Sowers, K.R., Swanson, R.V., Zinder, S.H., Lander, E., Metcalf, W.W. and Birren, B. The Genome of M. acetivorans Reveals Extensive Metabolic and Physiological Diversity
                                                                                                                                                                                                                                                                                                                                                                            Direct Submission
Submitted (20-MAR-2002) Center for Genome Research, Whitehead
Institute, Nine Cambridge Center, Cambridge, MA 02141, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=1
/product="orotidine-5-phosphate decarboxylase"
/protein_id="AAM04401.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism≈"Methanosarcina acetivorans C2A"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="eif5A-deoxyhypusine synthase"
/protein_id="AAM04400.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
/product="predicted protein"
/protein_id="AAM04399_1"
/db_xref="G1:19914792"
                                                                                                                                                                                                                                                        Genome Res. 12 (4), 532-542 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:188937"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(1732, .2238)
/gene="MA0967"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(934. .1380)
/gene="MA0966"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(934. .1380)
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
1. .11320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /pseudo
2676. 3629
/gene="MA0968"
2676. 3629
/gene="MA0968"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3568. .4299
/gene="MA0969"
3568. .4299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="MA0965"
303. .695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="MA0965"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3568. .4299
/gene="MA0969"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /strain="C2A"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="MA0966"
                                                                                                                                                                                                                                                                                                                         2 (bases 1 to 11320)
Birren, B.
                                                                                                                                                                                                                                                                                  21929760
                                                                                                                                                                                                                                                                                                         11932238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                               MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                          PEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATACGGCTCCAGTATTTCCTGGGGAGCCTGATGGTCCTGACTGGTAATGTTGCCCTTGA 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1043 AICCAIGGGAITIAAAACGCIGGGAITIGCIGGCGGAAGAAGAAGAIGACIGGGAGIC--- 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1217 AGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTC 1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1337 TAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCGAGGGCCTGATGGTGCACC 1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1397 TGTGGAGGAGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATAC 1456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         r BCT 03-APR-2002
of 534 of the
                                                                                                                                                                                                                                                   347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Archaea; Euryarchaeota; Methanococci; Methanosarcinales;
Methanosarcinaceae; Methanosarcina.
I (basea: 1 to 11320)
Galagan, J. E., Nusbaum, C., Roy, A., Endrizzi, M.G., Macdonald, P., Fitzhagh, W., Calvo, S., Engels, R., Smirnov, S., Atnoor, D., Brown, A., Allen, N., Naylor, J., Stange-Thomann, N., DeArellano, K., Johnson, R.,
                                                                                                                                                      287
                                                                                                                                                                                                       862
                                                                                                                                                                                                                                                                                                       922
                                                                                                                                                                                                                                                                                                                                                                                                      982
                                                                                                                                                                                                                                                                                                                                                                                                                                                       467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    827
                                                                                                                                                                                                                                                                                                                                                        407
                         228 AGCGGTTAAAAAGGACCTGGCAGCGCTAATGACAGTTCACAGGACTGGTGGCCAGCAGA
                                                                                                                                                                                                                           GGACCTGGTATACTGGGGGCCTGACAAGACCTCTTGCAGATAACCGGGATAAA---AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAG
                                                                                                                                                                                                                                                                                                                                                                                                    CTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATACGGTCGAAAAATCTCCTGGGCGGATCTAATGATACTCACAGGAAACGTAGCTCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTATGTCAATCCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATCAAATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGA
                                                                                                  GCCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGA
                                                                                                                                                                                                    TTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AE010762 11320 bp DNA linear
Methanosarcina acetivorans str. C2A, section 107
complete genome.
AE010762 AE010299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATCACCAGTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      948 CATCACCAGTGGACTAGAAGGCGCCTGGACCA 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Methanosarcina acetivorans C2A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Methanosarcina acetivorans C2A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:19914790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AE010762.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1457
                                                 168
                                                                                                  743
                                                                                                                                                                                                  803
                                                                                                                                                                                                                                                   288
                                                                                                                                                                                                                                                                                                 863
                                                                                                                                                                                                                                                                                                                                                   348
                                                                                                                                                                                                                                                                                                                                                                                                    923
                                                                                                                                                                                                                                                                                                                                                                                                                                                408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AE010762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                 움
                                                                                                                                                셤
                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           合
õ
                                                                                               ò
                                                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
```

9105 792 9165

732

CTGGATATGGAGGCTCTGAAAAAAAAAATTTCAAAGATTTGCTGACAACTTCCCAGGATTGG

TGCCCTGCGGATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCC

851

9225

912

972

852

GGAACATACAGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAA

CCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCA

9285 CCGCTCAACAGTTGGCCGGACAATGTCAACCTGGACAAAGCGCGTCGTCTGCTCTGGCCG GTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAAT

971

```
ç
                                                                                                                            요
                                                                                                                                                                               δ
                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
/db_xref="G1:19914794"
/translation="MQQSLSHLSFPLCGRAFQRDDLMERNTCMILALDVTDREEALKI
ABDVWEFVALILANGLGIIRELAEFAPVIADFKVADIPNTRLICCOOFEA
ABDVWAFVAGFTGRDSLDACTGIASETRKDFVVVSEMSHPGGADFMQPVAEAIAKMALE
AGAPCIAVAPATRPKTKKINRIIGDKLIISFGVGAGGGKASDVIAAGADWIVGRSI
YKAESPKEAARQIAEEIQAELRGEY"
                                                                                                                                                                                                                                                                                                               /product-"sensory transduction histidine kinase"
/protein_id="AAM04402.1"
/db_xref="GI:19914795"
/translation-"MORYSKINSWSQKGIQKGNMNAKVEQTPATNQNIVLSYDNNGTI
IHSNRAASEPILKEWGVSYGEKLPSSIVDLYORDYISTNSPEKTEVKYGKLIZIVVFSPL
EEGDRVSISEPILKEWGVSYGEKLPSSITERAEREDITVEELRKSEKKYFFLFDTIDEGF
CVIEVLFDEAACPIDSYFFLERIANSFRENDGIKNAYGRRMRETAPEHEEHWFOITGNNA
LIGEPVRFFENPALALGHFYDVYAFRTGDPDHRRVGILLFNDIAKRRAEEMLRESAERQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LSETSPIGYGYSSAESKIITTNPAYDRILGYNFSELIGRYSTDYYMDEERKSWCRT.
KDKGVVRDFETKFKKKDGTVWYSINTSPISFGGRRAAMGTIQDISERKQAEEALRES
ELKETLSWTLERKYRELEKAYKFLOETDIIRKQEIHHRIKNNLQVISSLIDLQ
AEKFRGKKNIEDSKILERFYSELEKAYKFLOETDIIRKOEIHHRIKNNLQVISSLIDLQ
FLSYRLGKNIEDSTILERFYSTSGORYYKFLOENTHEELHKSGEIDTLNFSAYIHELSGNI
FLSYRLGNDGISLDMDIEEDIFFDMDTSVPLGMIYNBLYSNSLKHAFSDRDKGBIRIK
LHRKKNRESDIEDCIAFILSVSDNGIGIPRDLEIEDIESLGLQLYTTLIDQLDGELE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/transl_table=11
/product="ferric uptake regulation protein"
/protein_id="AaM04403.1"
/db_xref="GI:L9914796"
/translation="MSNLQDSDPLIIKALRGKGYKATPQRIAIGQFVLHNHAHPTAQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AFLLQLSDALRPLEDPIEIQAVATRVLGEHLGIARVAYGEVTDDDTFIVFERNYVAPG
VPLVTGRFRWADFGPSLLSALKEGRTIVVPDLASSTELSEAERSGYANLGIASLMGVP
LVKGGRFVAELVVHHTAPRQWSPAEVALIEETAERTWAAVERAKAEEALKESEERFRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IYSEVKKVYPTVSLATIYKTVQILKEVGLIQEFNLERDQARFDPNMEPHAHLVCLQCK
SINDCIDPMISEIVDRMSNEVDFSAGEWNFNIFGICSNCRRKKSICD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SAGTYRAGDGRGGGRGQQRFAPLNSWPDNVNLDKARRLLWPIKQKYGRKISWADLMI
LTGNVAMETWGFKTFGFGGGREDVWEPDQDVYWGSEDTWLGDERYTGDRDLENPLAAV
OMGLIYVNPEGPNGNPDPIAAAKDIREVFARWAMNDEETVALIAGGHAFGKTHGAGPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SHVGPEPEAASIEAQGLGWKSSFGTGKGDDTITGGLEVTWTNTPTKWSNNFFRILFGY
EWELITKSPAGAYQWKPKGGAGAGTIPDAHDPSKRHAPSMMTTDLSLRFDPVYEKISRH
FYENPGQLADSFARAWFKLTHRDMGPRARYLGPEVPAEELIWQDPIPAVNHELIDEKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MDALQBQTDVVSFALLEPIADGFRNYLKAQYPLPAEELLVDKAQLLTLTAPEMTVLVG
GWRLVINTURCHTQHCVFTQKREALTHDFFVNLLDMGTEWKAVSDVKDIFEGCDRKTGE
VKWTGTRVDLIFSVQLRALEVCSADAQEKFVQDFVAAWTKVMNLDRFDLA"
2495 c 2699 g 3049 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IAFLKDRILASGLSISQLVSTAWVSASTFRGSDKRGGANGARIRLAPQKDWEVNQPAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LAKVLNTLEGIQSEFNSAASGGKKVSLADLIVLAGCAGVEQAAKNAGYDVTVPFLPGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="MGGNVMTDDKMNSVTSGANKQETGRDMSNRDWWPNHLKLEILHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HSSKSNPMGEDFNYAKEFKSLDLAAVKKDLAALMTDSQDWWPADFGHYGPLFIRMAWH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LKRDDGTEFIVRFSITERDNQANSPTQQFNEF'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
/product="catalase/peroxidase"
/protein_id="AAMM4404.1"
/db_xref="G1:19914797"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(8223. .8672)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(8223. .8672)
/gene="fur"
                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="MA0972"
8913. .11123
/gene="MA0972"
                                                                                                                                                       5307. .7799
/gene="MA0970"
                                                                                                                                                                                                                                   /gene="MA0970"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="fur"
/note="MA0971"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
```

9584

GAIGGIGCACCIGIGGAGGAGCAGGACIGGGAIGGAAAAATAAATGIGGTACAGGAAAC 1445

GGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGA 1488

9822

CATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCT

TGGGAGTCGGACCTG---GTATACTGGGGCCCTGACAACAAGCCTCTTGCAGATAACCGG 1148

GTTGCCCȚTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGAC

1032 9405 1092 GATA---AAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTAT 1205

1149

1206

9585

1266 9645 1326 9705 1386 9762 1446

GICAAICCIGAAGGCCCCGGIGGAAAACCAGAICCICIGGCIICCGCGAAAGAIAICAGG 1265

GTCAATCCGGAAGGCCCGAACGGCAATCCGGATCCGATAGCGGCGGCGCCAAAGATATCCGC GAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGG

```
T (bases 1 to 17986)
Xu,D.Q., Cisar,J.O., Ambulos,N. Jr., Burr,D.H. and Kopecko,D.J.
Molecular Cloning and Characterization of Genes for Shigella sonnel
                                                                                                        InsA
                                                                                                                                                                                                        Shigella sonnei
Shigella sonnei
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                     Ar294823 Shigella sonnel O antigen gene cluster, complete sequence: insertion sequences ISI InsB (insB), InsA (insA), IS630 transposase, IS629 ORFA (orfA), IS91 transposase (insB) and IS911 InsB (insB) genes, complete cds.
                                                                                                                                                                   AF294823.1 GI:15149169
                                                                                                                                                                                                                                                                           Shigella.
RESULT 15
AF294823
LOCUS
DEFINITION
                                                                                                                                             ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
```

23.5%; Score 349.4; DB 1; Length 11320; llarity 66.6%; Pred. No. 1.5e-92; Conservative 0; Mismatches 266; Indels 9;

Query Match Best Local Similarity Matches 548; Conserv

```
ALGSVPRSIVDPĪTTNATNITGFLNILHAAKNAQVQSFTYAASSSTYGDHPALPKVĒĒ
NIGNPLSPYAVTKYVNEIYAQVYAFTYGFKTIGLRYFNVFGRRODPNGAYANIPKWT
AAUKGDDVY INGDGETSRDFCYIDNVIQMNILSALAKDSAKDNIYNVAVGDRTTLNE
LSGYIYDELMLIHHIDKLSIKYREFRSGDVRHSQADVTKAIDLLKYRPNIKIREGLRL
SMPWYVRFLKG"
                                                                                                                                                                                                                                                                                                               DPYYLHKAQSVGYHPEMILAGRRLNDSMGQYVVSQLVKKMIKQRIQVBGANVLVMGL
TFKENCPDLANTKVIDIISELKEYNINIDIIDPWCSTDEAQHEYGLTLCEDPKVNHYD
SIIIAVAHHEFREMGESAIRALGKDEHVLFDLKYVLDKKSIDMRL"
3150: .4187
/gene="wbgU"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
/product="putative UDP-glucose 4-epimerase"
/protein_id="AAR85165.1"
/db_xref="GI:L5149174"
/translation="MDIYMSRYEEITQQLIFSPRTWLITGVAGFIGSNLLEKLIKLNQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="MFRKMIDAGGTFLLKAIFQIGVFVYFTHVSDITTFGIISYVFTV
YMFVLNFSDYGFRTKLVKDISDNSYSASELLSRSDGVKTYVFFFIFIIFMFYSYVSDS
ISLTLLVYISSAYFVCISSGRFSLLQAVGRFRCELYINIYSTIIYIGCNLFLSLFIEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LXYSAISIFIYSISLLVFSSHKCNVPCFHIKRPSILVYKDFLDATPFAILVLLNVVLS
SIDFFILKPFSYNSYAIYQVYTRVNTGLIIVFNYIYYTLLFBFSYYLKNSFWGNIRK
LQRYISLLVLLLCCCYYFFGIYFVGILEGDEFKVISSATFLJHFMAILKYNFFLINEL
YLVCSGNQSERVKSYCIGVVISMAVFFYFIPRYGWSGAVFGSAIATLVIGIFYIISVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EKLLISLFFVPLLTLGISFTDIGTRLERMLSSSQVIFSGGNTJTKSQNDYRNPLVFI
GVDVLKENYLIGTGLGVANYVKAIDKKFLGSNNFGLAHNFYLSYSAQLGIIGFTLLIS
VFYLMLSPIFKGGGYIGKGCVFALAFYVFFNEYILTPAIYIYISIFLSVVFIRNSK*
6885. .7948
/insertion_seq="IS630"
                                                                                                                                                                                                                                      HKQPDLTPLIKASETLGKIIKKGDVIIYESTVYPGATEEDCIPVVEKVSGLKFNIDFF
AGYSPERINPGDKEHRVTNILKVTSGSTPDVAEYVDQLYKLIITVGTHKASSIKVAEA
AKVIENTQRDVNIALINELSIIFNKLGIDTLEVLEAAGTKWNFLPFRPGLVGGHCIGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="GI:15149175"
/translation="MLIYLYPVLLLFNILPVFFYGQMNSDLERFFGVPIGYIPDLIFY
                                                                                                                                                                                                                   GFDINKSRIDELRNGHDSTLECSNLELLEATKLTYACSLDALKECNVFIVTVPTPIDK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VVIGLDNFSTGHQYNLDEVKTLVSTEQWSRFCFIEGDIRDLTTCEQVMKGVDHVLHQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALVLLVSFCIGKDELYLTHSVRNINVVMCFGIICGVVKLFIGYSEDSNFIVYLNRNAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AIIVVCFYCVYSYFYRGRKSWYVSSVLYSLFFLFLDSRAGIISFAISLFFVFLQLTKR
                                                                                                                                                                                        /translation="MFYVHFMMDKKMKFDTLNAKIGIIGLGYVGLPLAVEFGKKVTT1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FFVVLTSIITLRFHVSLWTKKLLFLGIIFLIYISIQMLLLSADISGVVILLSFFSNF
                                                                              /transl_table=11
/product="putative UDP-glucose 6-dehydrogenase"
/protein_id="MAR85164.1"
|D_xref="G1:13149173"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="putative polysaccharide polymerase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="putative repeat unit transporter"
/protein_id="AAK85167.1"
/db_xref="GI:15149176"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KDCGKILHDKYSLMMIFVPIFFYFIINGQQRLLY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein_id="AAK85166.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="WbqU; ORF5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="wzy"
5625.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  3150. .4187
/gene="wbgU"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="ORF7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4266. .5556
/gene="wzx"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="ORF6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5614. .6797
/gene="wzy"
5614. .5617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1276. .5556
/gene="wzx"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5625. .6797
/gene="wzy"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /procedi_id="Aak85161.1"
/db_xref="G1:15149170"
/db_xref="G1:15149170"
/translation="MPGNTTHVGRWPQHDFTSLKKLRPQSVTSRIQPGSDVIVCAEMD EQWGYVGAKSRQNRHPZYALDSKTYVAHVFGERTMATLGRLMSLLSFPDVVIWHTDG WPLYESRLKGKLHVISKRYTQRIERHNLNLRQHLARLGRKSLSFSKSVELHDKVIGHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /protein_id="aak85162.1"
| Dack_xref="GI:15149171"
| Arranslation="haxysystechesosatdgyvrngkstaghorylcshcrktwqloft
| Ytasopgthokiidmamngygcratarimgyglntilrhlknsgrsr"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NKEJIDJDFQRKSEKLDQJAHJQRDLTTAEQAGIJDYRSSKGGFDNAGSSYKFLLGEK
LLSAELKATKDAPJIYPFRYYEVKRQJDELEGMLRDNIQAQAYRYQMKPSEPVIKDKP
NKALJLJIGALPGAMFAJVGTLVYATLKDKTKLD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1645. .1650
1666. .1671
/note="putative promoter of O-antigen biosynthetic operon"
175. .3069
/gene="wbgT"
1745. .1749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NALANGLFSDLILIAESPDTKVKFLESTEYYKKETNNLSTDODKKTWLABQANKGLVI
TPPKEKGNTSYYIIQASADSAQEAYKLLQGYLKNVNNQAVTLSLDEFGONVNTLLVNL
                                                                                              Yu,D.Q., Cisar,J.O., Ambulos,N. Jr., Burr,D. and Kopecko,D.J.
Nu,D.Q., Cisar,J.O., Ambulos,N. Jr., Burr,D. and Kopecko,D.J.
Direct Submission
Submitted (109-AUG-2000) Oral Infection and Immunity Branch,
National Institutes of Health, National Institute of Dental and
Craniofacial Research, Bldg. 30, Room 302, Bethesda, MD 20892, USA
Location,Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'translation="MYAFTAKEQWTAKTYIQAPRIAELGSYLKFHQAYARILNQPLDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="similar to Shigella sonnel rfbR and Actinobacillus actinomycetemcomitans wzz proteins"
Form I O Polysaccharide: Proposed Biosynthetic Pathway and Stable Expression in a Live Salmonella Vaccine Vector Infect. Immun. 70 (8), 4414-4423 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="similar to Escherichia coli IS1 InsB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="similar to Escherichia coli IS1 InsA"
                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="similar to Escherichia coli IS1"
/insertion_seq="IS1"
complement(16. .519)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="truncated Wzz protein"
/protein_id="AAK85163.1"
                                                                                                                                                                                                                                                                                                                  /organism="Shigella sonnei"
                                                                                                                                                                                                                                                                                                                                /strain="53g"
/db_xref="taxon:624"
/clone="cosmid pWR101"
1. 768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    db_xref="GI:15149172"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(438. .713)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(438. .713)
/gene="insA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(721. .724)
complement(734. .739)
complement(756. .761)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(16. .519)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'product="InsA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="InsB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="wzz"
788. .1720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1745. .1749
/gene="wbgT"
1756. .3069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="insA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="insB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="insB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     788. .1720
/gene="wzz"
                                                                                                                                                                                                                                                                                       1. .17986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LNIKHYO"
                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RBS
-10_signal
-35_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -35_signal
-10_signal
                                                                                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                            REFERENCE
                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                               FEATURES
```

```
BCT 10-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nakacone, K., Masui, N., Takaki, Y., Sasaki, R., Maeno, G., Sakiyama, T., Hirama, C., Fuji, F. and Takami, H. Characterization and comparative study of the rrn operons of alkaliphilic Bacillus halodurans C-125
                                                                                                                                                                                                                                   Takami, H., Nakasone, K., Hirama, C., Takaki, Y., Masui, N., Fuji, F., Nakamura, Y. and Inoue, A. An improved physical and genetic map of the genome of alkaliphilic Bacillus sp. C-125.
Extremophiles 3 (1), 21-28 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 (sites)
Takami, H., Nakasone, K., Ogasawara, N., Hirama, C., Nakamura, Y.,
Takami, F., Fuji, F., Takaki, Y., Inoue, A. and Horikoshi, K.
Sequencing of three lambda clones from the genome of alkaliphilic
Bacillus sp. strain C-125
Extremophiles 3 (1), 29-34 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Takami, H. and Horikoshi, K. halvaliphilic Bacillus strain from an Analysis of the genome of an alkaliphilic Bacillus strain from an industrial point of view Extremophiles 4 (2), 99-108 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                         Takami, H. and Horikoshi, K. Reidentification of facultatively alkaliphilic Bacillus sp. C-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence analysis of a 32-kb region including the major ribosomal protein gene clusters from alkaliphilic Bacillus sp. strain C-125 plosei. Biotechnol. Blochem. 63 (2), 452-455 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genome analysis of facultatively alkalihilic Bacillus halodurans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5 (sites)
Takami,H., Takaki,Y., Nakasone,K., Sakiyama,T., Maeno,G.,
Sasaki,R., Hirama,C., Fuji,F. and Masui,N.
Genetic analysis of the chromosome of alkaliphilic Bacillus
halodurans C-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Takami, H., Masui, N., Nakasone, K. and Horikoshi, K. Replication origin region of the chromosome of alkaliphilic Bacillus halodurans C-125
Biosci. Biotechnol. Biochem. 63 (6), 1134-1137 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Takaki, Y., Nakasone, K., Hirama, C., Inoue, A. and
                                                                                                                                                                     Bacillus halodurans
Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (in) Extremophiles in deep-sea environments (Ed.);
                                                DNA linear section 4/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Biosci. Biotechnol. Biochem. 63, 943-945 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       halodurans C-125
Extremophiles 3 (3), 227-233 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    249-284; Springer-Verlag (1999) (sites)
                                         AP001510

302150 bp

Bacillus halodurans genomic DNA,

AP001510 BA000004

AP001510.1 GI:10173440
                                                                                                                                                      Bacillus halodurans DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HORIKOSHI, K. TSUJII;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacillus halodurans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Horikoshi, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        akami, H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6 (sites)
Takami,H.
                                                                                                                                                                                                                                                                                                                                                                                             (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (sites)
                                                                                                                                                                                                                                                                                                                                                                 10086841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0484179
                      AP001510/c
LOCUS
                                                                DEFINITION
ACCESSION
VERSION
                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
PUBMED
                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                       JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                   PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16594 ATTTTGGTCACCGACTCAATCACCACCGGACGTACTGCCCCTTCCGGCTGCTTCTCCAGC 16653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .6714 GCGGGGCGACTCCGTCCGGCCAGTGAACCGTCCGGGCACACTCCGGGCACATACCGCCGG 16773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation-"mpiiapisrderrimgraihkThdknyarrifamimihrgdrys
DVARTICCARSSVGRWINWFTQSGVEGLKSLPAGRARRWPFEHICTLLRELVKHSPGD
                                                                                                                                                                                                                                 FGYORSHWSTELLAIKINEITGCOLNAGTVRRWIPSAGIVWRRAAPTLRIRDPHKDEK
MAAHHRALDECSAEBHPYFYEDEVDIHINPKIGADMOLKGOGKRVYTPGONEKYYLAGA
LHGGTGKVSCVGGNSKSSALFISLIKRLATYRRAKUTLIVDNYIIHKSRETOSWLK
ENPKFRVIYOPVYSPWMNHVERLWOALHDIITRNHQCSSMWOLLKKVRHEMETYSPFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LKRTNFKCNIDVEHVVNHFMFAPDGRSVMFIHRYTTPKGKRERLJHWNLINDNVRVLI
SELISHCOWGNDEJIGFFCAEIDSLNYYRLSIESCNTEKLFPDARKYSDGHPTIVH
NRYIEDDY PDKNERKLFKKLFYYDLVKNDYRELGLFYESMSFFSYSRCDLHPRISVDNRF
LFVDSVHSGKRKLYFMRSGICE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DLINNKVYKLYDTRAFNWQQGSRLMMIDDDNIIFNDYENNGYISVVYSLSLMKVIKKI
NYPIYDVNNYKAVTLDFSWLAKYDSDYGYYNKKSFSTDISIINLNTGGIELFLSLDEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /IQSKIYEISIDDSEESFFGYYDHSPMSSNGRYVLFHSSAFSTKRHPKKVKYISICVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation="MLLEYVERKISLALSKYPKVRDVIKFFYLYIASLFGIILNKNKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTTTGTCACAGACTCAATGACTACCGGAGGCACGCACTTCCGGTTGTTTCTCCAGC 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGITAAGCCAGCGGTITCCCIGCIGAAAAIGTCGGCAAAACGGGGAAGCAICAGAAGG 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
                      5894. .7925
/note="ORF8; Tpase; similar to IS630 53G ORF5 and HW383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4 CAGTCCGGAGATGAA-AGCACCACTGTGTGTACCCCATCAGCGTGGTCCCGCAGGCCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGGGGAACTCCGTCCGGCCAGTGAACCGTGCCACACTCCGGGCAGTACATGCCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCCTTCGTCAACACGTACAAACCAGAAGACCAGCTTTTTGTTTCTGACATCCACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             243 CGCTGATACCGGCAAGAATGGTCGCAAACTCCCGCTCCGTGCAGCGGGCTATTTCAGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 17986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGAAGGGAATATTCAGGTCTGCGCAGCACTCAACGGCATCGTCA 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 2.5e-92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23.4%; Score 348.8; 93.1%; Pred. No. 2.5
                                                                                                                         /product="transposase"
/protein_id="AAK85168.1"
/db_xref="G1:15149177"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'protein_id="AAK85169.1"
'db_xref="GI:15149178"
                                                                                                     'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    product-"WbqV"
                                                                                      'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9181. .10181
/gene="wbgw"
9181. .9184
                                                                                                                                                                                                                                                                                                                                    7947. .9202
/gene="wbgv"
7947. .7950
                                                                                                                                                                                                                                                                                                                                                                                                      "gene="wbgV"
                                                                                                                                                                                                                                                                                                                                                                                                                            958. .9202
gene="wbgV"
                                                                  ransposase
                                                                                                                                                                                                                                                                                                                       SGKHGLAKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Sim
Matches 376;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
RBS
                                                                                                                                                                                                                                                                                                                                                                                RBS
                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RBS
```

셤

ã

qq

ö

g

6 6 6 6 6 6

ŏ

```
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
//tansi_table=11
/product="transcriptional repressor"
/product="transcriptional repressor"
/product="transcriptional repressor"
/protein_id="BaB04545.1"
/protein_id="BaB04545.1"
/protein_id="BaB04545.1"
/protein_id="BaB045441"
/translation="MLTIERHEQIYKLVQEKEVVTHDLVEYTNASESTIRRDLTELE
KQKKLKRIHGGASVLKKRREEPTMAEKTVKNNHEKKKIAELAASFVEDGDCLFLDAGT
TTREDKAFLGINGWILLEDGFTTPDPQBAYKETALSLSREAFMLVDHSKFGETTFATV
APIHAATIYTSSQVEQQVIQAYETGTALSLSREAFMLVDHSKFGETTFATV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MIYTVTLNPSIDYIVQVENFQQCVVNRSERDRKQPGGKGINVSR
VLKRLGHETRALGETGATGAYVRNLEKEBIGLSFIEVEGTTRINVKIKGKQETELN
VTRRLGHETRALGETGATGAYVRNLEKEBIGLSFIEVEGTTRINVKIKGKQETELN
OTSGEALHEVLAAKPSTRYNHHELSELVSKPIASIEDAIPHVQRLIGEGIESILVSF
AGDGALFASARGMFNNTVROFGENRNSYGAGDSYVAGFLAALQEGKSLEDAVPFAVAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MIAASEGANNEHLETLSRLSTFLMDETFRSTLMKAQSEDEILAAIDKKEAETAGEAEE
KOGYELLLATYGCPTGIAHTVAAADNIKSKAQELGYSIKVERTRSGGYKNRLTPEEIS
KAKLI IVAADTWGADRFHGRPVIQYPYTDGIRPKELIDQALGKAPVYEGGAQSG
EDGSAGGGRPKLGFYKHLMNGVSNMLPFVVGGGILIAISFMFGIKAFDPSDPSYHPFA
                                                                                                                                                                                                                                                                                                                                                                                                                                           (E-mail:takamih@jamstec.go.jp,
URL:http://www.jamstec.go.jp/jamstec-e/bio/DEEPSTAR/FResearch.html,
Tel:81-468-67-3895, Fax:81-468-66-6364)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="BAB04547.1"
/db_xref="GI:10173443"
/translation="MLKISELLKKDTMVLNLRAASKEAVIDELVRTLDKAGRLNDAQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FKRAILERESQSTTGVGEGIAIPHAKTAAVKQPAIAFGRSDAGIDYESLDGQPSHLFF
                                                                                                                                                                    Complete genome sequence of the alkaliphilic bacterium Bacillus halodurans and genomic sequence comparison with Bacillus subtilis Nucleic Acids Res. 28 (21), 4317-4331 (2000)
                                                                          10 (sites)
Takami,H., Nakasone,K., Takaki,Y., Maeno,G., Sasaki,R., Masui,N.,
Fuji,F., Hirama,C., Nakamura,Y., Ogasawara,N., Kuhara,S. and
Horikoshi,K.
                                                                                                                                                                                                                                                                                                                                                                Submitted (22-MAR-2000) Hideto Takami, Japan Marine Science and Technology Center, Deep-sea Microorganisms Research Group; 2-15 Natsushima, Yokosuka, Kanagawa 237-0061, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'product="PTS system, fructose-specific enzyme II,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="fructose 1-phosphate kinase"
/protein_id="BAB04546.1"
/db_xref="GI:10173442"

    .302150
    /organism="Bacillus halodurans"
/db_xref="taxon:86665"
    /note="alkaliphile"

  4 (4), 209-214 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="BH0827"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="BH0826"
23. .778
                                                                                                                                                                                                                                                                                                11 (bases 1 to 302150)
Takami, H. and Takaki, Y.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="BH0826"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  775. .1695
/gene="fruB"
775. .1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="fruA"
1701.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             775. .1695
/gene="fruB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1701. .3578
/gene="fruA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    component"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23. .778
Extremophiles
20426005
                                                                                                                                                                                                                                                                           11058132
                                                                                                                                                                                                                     JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                PUBMED
REFERENCE
  JOURNAL
                            MEDLINE
                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                         TITLE
```

```
/profession.id="mano4549.1"
/db_xref="G1:10173445"
/translation="massrillibiaimsglaffulsfyrigvfwayggsislywldi
/translation="massrillibiaimsglaffulsfyrigvfwayggsislywldi
/translation="massrillibiaimsglaffulsfyrigypleficiasiffayggs
EGKREYAAMIGGVLFASFLRFLCHFTSGIVWFGEYAPBGTFVALYSFVYNISYVLPEA
                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="marvvnvmyrtvpkisgkslindfpsgsirkvihgilddmsvsh
vknavqagvyqgpckstghynpvyeelkakkaerstkkkmmrgdlvmsnktlrfrrih
lrgkenvhielrlvaltaqhketsdggssle"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DPRGIETTHGTHVAGTVAANGLIKGVAPDANLLAYRVIGPGGRGSTAGVIAGIERAVO
BODIUMULSIGNTLANDDERYSIALLDWAMAEGVVAYTSNGNGSPNNWTVGSPGTSRDA
ISVGATRLPYNKYRASVFTSGIDYPSADIMGFPSDEELLELDGETYEAFAGLGKPG
DFEGVDVEGKIALIYRGEIPPREKARNARAAGAVGAIIXNNVAGVOPTVPGIAIPTIM
LSNEDGLKMRNELENGQNTVTFSIEFDKLVGETVADDFSSRGPVMHTWMIRPDVSAPGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          83843 ACAAATAACGACTGGTGGCCAAACGCGTTAAACTTAAATATTCTTCGTCAGCATGACAAA 83784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LAGYVALGVKKVLANLPQTLDGIKTILFYPVFNIFITGMIMLVIVGPLAAFNTGLQDW
LGSMGTANNYIGYLIGGMANDMGEPIKRAFFTGLAMIDAGNRGPHAAVAGGMYP
PLGIAGTTLFKKKFTGEREAGKTNYILGASFITEGAIPFAAADGHYIPSTIVGSA
FAGGLTALFNVTLSAPHGGAFVIFIGNIVNNPLLYLVAIIAGSIVTALLIGFWKKDAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MMMRTFRTFVSFTLILLLTLTSYIPVSQANGESPSLAPMVGEID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AIVSTIPTHOPDDPYGYGSROGTSMASPHVAGAAALLLEAHPWGYDHYKAALMYTAE
NLYDENGNRYPHNTOGAGSIRIYDAIESETLYTPGSHSFGTFTKERGKOVERQHFTIH
NLSNKRRTYQFDYQFAGNPDGIKVKTSKNLRYQPGKTOKINFNYQYDARKLDPGYYEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSSSALETVIVEIEDPSIIEAKHQGQKOSKNELKQARQSVIEQIQDLVPSSTVTHEYD
FLFSGFALELPAHQIPSILGIDGVHAVYPNIEYEVETDFDEVVIEKDAYSPEMLDSAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FIGANDAWEAGYTGEGITVAILDTGVDYTHPDLVHAFGDYKGWDFIDNNDDPQETPPG
EMLMT I GGGNAFGLMI PVLAAF I AMS I ADRPGFAAGM I GGL I ASTGEAGFLGGL I AGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   681 GAATCAAATCCCTGGGGGCCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             741 GAGGCTCTGAAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1; Length 302150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="minor extracellular serine protease"
/protein_id="BAB04550.1"
/db_xref="GI:10173446"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B. subtilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      304;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 334.6; DB 1
Pred. No. 8.9e-88;
0; Mismatches 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              unknown conserved protein in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LISIIVLALFGKKYSQMFQPKKELGV"
COMPLEMENt(5283. .7682)
                                                                                                                                                                                                                                                                                                                                                                           /protein_id="BAB04548.1"
/db_xref="G1:10173444"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(5283. .7682)
/gene="vpr"
                                                                                                                                                       complement(3677. .4078)
                                                                                                                                                                                                     complement(3677. .4078)
/gene="BH0829"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /EC_number="3.4.21.-"
/note="BH0831"
                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="BH0830"
4694. .5254
/gene="BH0830"
                                                                                                                                                                                 /gene="BH0829"
                                                                                                                                                                                                                                                                    /note="BH0829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="BH0830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22.5%;
63.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="vpr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                   unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 559;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       621
                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
```

```
ELGSELFERSAREVKLTPFGQTFALRVRDILRAVDELGEFARASRDSFLTRLRIGIIP
TIAPVLLPVHKLNKSFAGIQIEVRETHTGKLVHELAQGQLDMAIVALPVSEPSITE
LSLFRGRIRAGPAPPGRRKVPEREALREMRLLLLEEGHCFRDQALSFCKVGAARPRE
IMEGSSLSTLVQWYGAGIGTLIPEMAVPVETRRAHVSISRFPSPAPRRTIGMYMLNF
HPMGNHLPWKLAKARSRLVWRKTSPSAINGGG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="Aal93241.1"

/dolesip="Gi:19702289"

/translation="MONPTOPRORECEVAHGNKPRGPSNRDWWPNOLNWOILHHNSGRA
DPLGKDFDYAEDIOEARSRRAEKGLHALMTDSQDWWPADPGHYGGLFIRWAWHSAGTY
BTTDGRGGAGHGQHRPAPLNSWPDNAHDLARARLUPPINGYCONRISMADLLITIGNU
ALESWGFKTLGFAGGADWWWPBELWYGPEGTWLGDBRYSGRHLANDLGAVOMGLIY
VNPEGPNGNPDPVAAARDIRETLARMAMNDEETWALIAGGGHTFGKTHGAGDBSFIGAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LATGLTVQELVSTAWASASTFRGSDKRGGANGARĪRLAPQKDWEANOPAQLAKVLGVL
BGIQKDFNAAQTGAKKISLADLIVLAGAAGYKKAAAAGGNAVSVPLYFGRMDASEAQT
BGIQKDFREDERIDGFRNYNOKRLQFWKPEEMLVDRAQLLTLTGPEMTVLVGGLRVLK
AGNPEHGVFTSRPETLTNDFFVNLLDVGDQWVPAPERKGLYRPRRKTGAAKWTGTRVD
LIFGSHSQLRAFAEVGKFVKKFVKDFVAAWNKVMNADRFDLR"
1051 c 1011 g 570 t
                                                                                                                                                                                    /codon_start=1
/transl_table=11
/product="katG regulator"
/protein_id="AaL93240.1"
/db_xref="G1:19702288"
/translation="MKNLTLKQLRYFEALARDGRFRRAAGSCAVSQPALSMQIKELEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PEGGAIEDQGLGWKSSFGTGVGKDAITAGLEVTWSQTPTKWSNYFFENLFAYEWELTK
SPAGAHQWRAKNAEASIPDAYEPGKKHVPTMLTTDLSLRFDPIYEKISRRFLENPDQF
ADAFARAWFKLTHRDMGPKVRYFGPELPAEDLIWQDVIPAVDHPYDDKDIAELKAKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCCGCTCGGTAAGGACTTCGATTATGCCGAAGATATCCAAGAAGCTCGATCTCGACGCG 1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1270 CTGAAAAAGGACTTC-ACGCGCTGATGACGGATTCGCAGGACTGGTGGCCGGCCGACTTC 1328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               807 GGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGGACAATGCCAACCTTGACAAGGCCCGCCGTCTGCTTTGGCCGATCAAGCAGAATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               867 TATGATGGCCGGGGAGGCGCCAGTGGTCAGCAACGTTTTGAACCGCTGAACAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                688 ATCCCTGGGGGCTGATTTTGATTATGCC-ACCAGATTTCAACAGCTGGATATGGAGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .;
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22.4%; Score 333.6; DB 1;
llarity 66.8%; Pred. No. 5.8e-88;
Conservative 0; Mismatches 259;
                                    /organism="Rhizoblum etli"
/db_xref="taxon:29449"
/plasmid="pCFN42f"
                                                                                                                                                                                                                                                                                                                                                                                                                   complement(942. .947)
Socation/Qualifiers
                                                                                                         complement(6. .947)
                                                                                                                                             complement(6. .932)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
/product="KatG"
                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="oxyR"
1064. .3260
/gene="katG"
1064. .1070
/gene="katG"
1077. .3260
                                                                                                                            /gene="oxyR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1077. .3260
/gene="katG"
                                                                                                                                                                     /gene="oxyR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       537;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              927
                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RBS
    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rhizobium etli plasmid pCFN42f katG regulator (oxyR) and KatG (katG) genes, complete cds.
AR486647
                                                                                                                                                                                                                                                                                                                                                                                                                                       83303 GGTGATCGTGAGCTTGAGAATCCACTTGCAGCTGTTGAGATGGGGCTTATTTACGTTAAC 83244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83123 TTTGGTAAGGCTCACGGTGCAGGAAATCCAGATCA---TGTTGGTCCAGAGCCAGAAGCT 83067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 83066 GCTCCGATTGAAGCACAAGGCTTAGGCTGGCAAAACACACATACGCTCTGGCAAAGGTCGC 83007
                                                                                                                                                                                                                                                                                                                                  GAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCG 1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1212 CCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCT 1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCACCTGTGGAGGAGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAA 1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vargas, C., Encarnacion, S., Davalos, A., Reyes, A., Mora, Y., Garcia, A., Brom, S. and Mora, J.
Direct Submission
Submitted (2-FEB-2002) Metabolic Engineering, CIFN-UNAM, Avenida Universidad s/n, Cuernavaca, Morelos 6210, Mexico
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rhizobium etli.
Rhizobium etli
Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae group;
Rhizobiaceae; Rhizobium.
                                                                                                                                                                                          AAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTT
                                                                                                                                                                                                                                                                            83423 GAAGATATGGGTGGACCGGTGGTTGGCTTCGGAGCTGGACGCGAAGACATTTGGCACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                 GACCTGG---TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAAACCGGGATAAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGAAGGTCCAGACGGTAAACCAGATCCTATAAAAGCCGCTCATGACATTCGCGAGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1272 TITTCACGIATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1332 TTTGGTAAAGCACATGCTGCAGCGTCTCCTGAAAAAGTGTATTGGCGCAGGCCTGATGGT
    GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC
                                                                                     AGGACATATGATGGCCGGGGGGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAAC
                                                                                                                                                                     AGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Vargas, C., Encarnacion, S., Davalos, A., Reyes, A., Mora, Y., Garcia, A., Brom, S. and Mora, J.
Only one catalase, KatG, has been detected in Rhizobium etli, gene and the regulator OxyR are encoded by a plasmid replicon Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1452 TATACCATCACCAGTGGCCTGGAAGGAGCCTGGTC 1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 3289)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 3289)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1392
                                                                                     861
                                                                                                                                                                     921
                                                                                                                                                                                                                                                                                                                                  1041
                                                                                                                                                                                                                                                                                                                                                                                                                 1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83243
                                                                                                                                                                                                                                                    981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 17
AF486647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ΟŅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                        셤
                                                                                     ò
                                                                                                                          셤
                                                                                                                                                                   ð
                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
```

윱

ò g à

ò 셤 ð 셤 ö 셤

윱 ð

à

ð

8

셤

```
/protein_id="aak65941.1"
/db_xref="G1:14524457"
/db_xref="G1:14524457"
Frenslation="Marpfsbllervudavtgeglscraaakregiglstaldwyrr
Frenscaarcqwggrpkrerklesphrawillcrcrerpfthglyaelsergikvdyrav
wifvhebglsykkrrwspangsgptspatghdg"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="Maplrgwaprgerluggapfghwwwytyvaalradrysapfild
GPINGERFRIYVQQVLVPELKAGDIVILDNLGSHKGQBIRAAIRKAGARLFFLPKYSP
DLNPIEKLFAKIKHWLREAQARSRDAIHDELRHILQAVTPQECAAYFKEAGYERA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="catalase/peroxidase"
/protein_id="Aak65944.1"
/db_xref="G1:14524460"
/translation="MDQKSSAGKCPVAHTAPRGRSNRDWPDQLDVQVLHRHSGLSD
/translation="MDQKSCROFVAHTAPRGRSNRDWPDQLEFRWAWISGLSD
PLGNTFNYAEERKLIDLDALKRDLRALMTDSQDWWPADFGHYGGLFRWAWISGTYR
ITDGRGGAGGGQQRFAPLNSWPDNANLDKARRLLWPIKQKYGNRISWADLLITGNNA
LESMGFKTFGFAGGRVDVWEPEELFWGPEGTWLGDERYSGERQLSEPLAAVQMGLITV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /function="Elements of external origin; Transposon-related functions"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LAQMVIAAYAGGTLVGILITFGELGARYSRRKLLVWSLGLFAVTSLLSAYAPTLEMLVI
LRFAQGAFGSGPAVFAPGFIHGLYPGDKAPSWFGRLGSIESLTPALAPTAGTAMTWG
GWQTSFLMLAGLAILCAVGSWAYRQSLPDRLEALEVHQSYMSIIRNGDFLRHGLSQAL
SLGSILIFVFGAPAVMTGALGMTIGDFILLQVFGIALFILASNASNALARRFGIERMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="G1:14524459"
/translation="MTVNVSPTVMFLLISFGTVLGIAGTDLVLPAMPTALGGTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MIGTGSLVLGFLLILLYTSLGGRSLTVLVPLWMTANGAFGIRGPIGFHQAIVASRGDH
SRGAALVVAAILGITAGGTAAAAPFINVGWWPLALASSLAALLALLCLKLIGSTA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="glimmer prediction; highly similar to catalase/peroxidase from Streptomyces reticuli, CAA74698"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1664. .2833
//gene='SMa2377"
//unction='Call processes; Transport of small molecules
//note="glimmer prediction; similar to putative
chloramphenicol transporter in several organisms,
including Salmonella typhimurium, AF118107, Klebsiella
pneumoniae, AAF27726, and Enterobacter aerogenes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="putative transmembrane transport protein"
/protein_id="AAR65943.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /EC_number="1.11.1.6"
/function="Cell Processes; Protection responses;
detoxification"
                                                                                             /standard_name="ISRm2011-2/ISRm11"
/note="SMa3018; predicted by homology"
                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
/product="TRm2011-2a transposase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
/product="TRm2011-2b transposase"
                                                                                                                          /note="SMa3018; predicted by hom
/evidence=not_experimental
/rpt_family="ISRm2011-2/ISRm11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /protein_id="AAK65942.1"
/db_xref="GI:14524458"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(2924. .5107)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(2924. .5107)
                 /db_xref="taxon:382"
                                           /plasmid="pSymA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="SMa2375"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="SMa2377"
1664. .2833
                                                                                                                                                                                                                                /gene="SMa2373"
516. .923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="SMa2375"
                                                                                                                                                                                                                                                                                          /gene="SMa2373"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="SMa2379"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="SMa2379"
                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                        repeat_region
                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sinorhizobium meliloti plasmid pSymA section 120 of 121 of the Complete plasmid sequence.
AE007314 AE006469
GGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCC 1046
                                                                                                                                              1689 CTGGCGAACCCGCTTGGCGCCGTGCAGGTCTCATCTACGTCATCATCCCGAAGGCCCG 1748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1749 AATGCCAATCCTGACCGGTCGCTGCAGCGCGGACATTCGCGAAACCTTGGCCCGCATG 1808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGCATACATTTGGTAAAGCA 1343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1404 GAGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACC 1463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1926 GACCAGGGCCTCGGCTGGAAGAGCTCTTTCGGCACCGGCGCTCGGCAAGGACGCCTTTACC 1985
                                                          1509 GGCAACCGCATCTCCTGGGCCGACCTTCTGATCCTCACCGGCAACGTCGCGCTCGAGTCC 1568
                                                                                                                                                                                                                          GTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACG---GGAAA 1163
                                                                                                                                                                                                                                                                                                                                        CTTCAGAAACCTCTTGCCGCCACGCAGGACTTATTTATGTCAATCCTGAAGGCCCC 1223
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATG 1283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCGAGGGCCTGATGGTGCACCTGTGGAG 1403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (29-MAR-2001) Biological Sciences, Stanford University, 371 Serra Mall, Stanford, CA 94305, USA Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae group; Rhizobiaceae; Sinorhizobium.

1 (bases 1 to 10578)
Barnett, M. J., Fisher, R. F., Jones, T., Komp, C., Abola, A. P., Barloy-Hubler, F., Bowser, L., Capela, D., Galibert, F., Gouzy, J., Gurjah, M., Hong, A., Huizar, L., Hyman, R. W., Kahn, D., Kahn, M.L., Kalman, S., Keating, D. H., Pelm, C., Peck, M. C., Surzycki, R., Wells, D. H., Yeh, K. C., Davis, R. W., Federspiel, N.A. and Long, S.R. Nucleotide sequence and predicted functions of the entire
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dases 1 to 10578)

Barnett, M.J., Fisher, R.F., Jones, T., Komp, C., Abola, A.D.,
Barloy-Hubler, F., Bowser, L., Capela, D., Gallbert, F., Gouzy, J.,
Gurjal, M., Hong, A., Hulzar, L., Hyman, R.W., Kahn, D., Kahn, M.L.,
Kalman, S., Keating, D.H., Palm, C., Peck, M.C., Surzycki, R.,
Wells, D.H., Yeh, K.-C., Davis, R.W., Federspiel, N.A. and Long, S.R.
Direct Submission
                                                                                                                 ATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sinorhizobium meliloti pSymA megaplasmid
Proc. Natl. Acad. Sci. U.S.A. 98 (17), 9883-9888 (2001)
21396509

    .10578
/organism-"Sinorhizobium meliloti"
/strain-"1021"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1986 GCCGCCTCGAGGTTACCTGGTCG 2009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1464 AGTGGCCTGGAAGGAGCCTGGTCG 1487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AE007314.1 GI:14524456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sinorhizobium meliloti. Sinorhizobium meliloti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11481432
                                                                                                              1047
                                                                                                                                                                                                                                                                                                                                        1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1224
                                                                                                                                                                                                                          1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1284
  987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 18
AE007314/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
```

molecules

```
GIQBDFNDAQTDGKKISLADLIVLAGGAAVEKAAKAGGHDTYPPFPGRUDAKULSVLE

GIQBDFNDAQTDGKKISLADLIVLAGGAAVEKAAKAGGHDTYPPFPGRUDASEAQTD

AASFAALEPRADGFRNYVSTTRQOFMKPEEALVDRAQLITITAPEMTVLVGGLRVLKA

GEPKHGVFTGRPEALINDFFVNLLDMGTQWSPIEGEEGVYEGRDRRTGAARWTGTRVD

LIFGSHSQLRAFAEVXAQSDAREKFVKDFVAAWTKVMNADRFDLV"

5640. 6113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MLLKAMKIGRQSLYDTFCDKWKLYCLAVERYSASETSAHIALLR
GKPRALEGIRLVWERVVDNANQACLGVNSICEFGQSRPDLAALHHAADRRLKNVVVER
IREAQAAGDLAVSLPAEAVADFLVANIAGIRIAARGGARREHLQSLSRLALRAVT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="glimmer prediction; similar to TED2, a putative quinone oxidoreductase, from Zinnia elegans, BAA06460, and from cowpea, T11672; also similar to putative oxidoreductases from Mycobacterium tuberculosis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITABISTATION- RESILIBORASIONES CONTRA LA CONT
                                               EGGAI EDQGLGWKSTFGTGVGKDAITGGPEVTWSQTPTRWSNHFFENLFNHEWELTKS
PAGAYQWKAKNAEATIPDAYDPSRKHVPTRLTTDLSLRFDPAYEKISRRFLENPDEFA
                                                                                                                                                                DAFARAWFKLTHRDMGPKVRYLGPEVPAEDLIWQDVIPAVDHRLVDETDIAGLKAKII
ASGLSVQELVSTAWASASTFRGSDKRGGANGARIRLAPQKDWEVNRPAQLARVLSVLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MKAVVMKEVGGTDVMEFVDRPEPVARPAHVVVEVAAAGVNFMDI
GVRQGMAWTDIPNPKVLGVEGAGRVLAVGDGTGEFAVGDRVAWYYAPGSYAQRQSIPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ASLVKIPDTVDDRTAASTMMQGLTASHFATDFYPVQPGDIALVHAAAGGVGLLITQII
KRGGRVIGRYSSBDKVALARKAAGBETVIDVDGSRADEVLKILGGEGYNVYTOSSGP
KTFKGSIEBLRRSGTFEVWCPPLGGPGPLEINNLPKSIKIGYAFFMHIHTRELLLDR
TKQLFDWIEDGSIIVTIGETYRLADAAGAHAAMASRATIGKLLLIP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LVGRRKSNAEESRGKSVELAERRRAGALDAVTAAKARIEVLOPFSIRLPRTELPAGRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VSVNVPFTLLDQSVSILERGETILENFKRLNPGASDNACRAALASFRFRADAALQRVE
ALSGGQVLRAGLACALGGSDPPSLLILDEPTNHLDIDSIEAVEAGLLSYDGALVVVSH
NPEGPNGNPDPVAAARDIRETFARMAMNDEETVALIAGGHTFGKTHGAGDPSFIGADP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(7357. .8946)
Agenea-%32385.
/function-%23285.
/function-%23286.
/note="glimmer prediction; similar to probable ABC
/ransporter from Streptomyces coelicalor, T35245, and to
VarM (probable transporter for virginiamycin) from
Streptomyces virginiae, BAA96297. ABC transporter family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MPSITLSALSWSKPDGEHVFSDLDLAFGPERTGLVGRNGIGKTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SAYQAARAVELEAAQQSLTLARKTADEVDRKARALAERLDKRDASGTRKAAKGDMPRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VLAFDGVTAGYDPARPIIRDLSFSLVGPRRVSVTGPNGSGKTSLLKVVTGELPPFKGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/product="probable ABC transporter, ATP-binding protein"
/protein.id="ARK65947.1"
/db_xref="G1:14524463"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Agrobacterium tumifaciens, etc. Zinc-bindng family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /function-"Small molecule metabolism"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="probable oxidoreductase"
/protein_id="AAK65946.1"
/db_xref="G1:14524462"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9057. .9713
/gene="SMa2387"
/function="Miscellaneous; Unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product-"hypothetical protein"
/protein_id="AAK65945.1"
/db_xref-"GI:14524461"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="glimmer prediction"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /function="Miscellaneous;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(7357, .8946)
/gene="SMa2385"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DETFLANIGIGTRVELSTSRG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="SMa2381"
5640. .6113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="SMa2383"
6167. .7135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5640. .6113
/gene="SMa2381"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene="SMa2387"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="SMa2383"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
```

CDS

```
4322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1160
                                                                                                                                  TAAELGISKHTLYRRYPNRQALLEAVVERDLVRFRKTLAEAAGGGEAPLAALRDMAFR
YFRFGTDRDYSAFYLSVTAEAVFSLPLRERLAAWSSAALEPLVQAIISAQAAGLVVPG
STIEICHVLIDLLEGANNRVRLCLSESPDASERLRLFESRWAVFQTAMMPEPNRPLGV
                                                                                                                                                                                                                                                                  /function="Cell processes; Adaptation"
//function="glimmer prediction; very similar to Ohr, a putative stress-induced protein, from Bradyrhizobium japonicum, AAF78793"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1341 GCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTG 1400
                                                                                                                    /translation="MIRARRAGGRPTREEAEALTRRLLDSARSTFARKGIANSSMEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1044 TCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGAC 1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4321 ACGCATGGCGCCGCCGATCC---GTCGTTCATCGGTGCAGACCCGGAAGGCGGCGCCATA 4265
                                                                                                                                                                                                                                                                                                                                                                                                 ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             923
prediction; putative bacterial regulatory
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1221 CCCGGTGGAAAACCAGATCCTCGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    804 TATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             864 ACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACGCTGAACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               924 TGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  984 TACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4621 recardederreagacerreserrreceseseseseseseseserareseaacesas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1104 CIGGIATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAAACGGGATAAAAACG---GG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1161 AAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGAACTTATTATGTCAATCCTGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4441 CCGAACGGCAACCCCGACCCGGTTGCTGCCGCGCGCGGTATCCGCGAAACCTTTGCACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGGCCATGGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                  TCAAATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGAT
                                                                                                                                                                                                                                                                                                                                                              1; Length 10578;
                                                                                                                                                                                                                                                                                                                                                                                                 ;
9
                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                              Score 331.8; DB 1;
Pred. No. 2.7e-87;
0; Mismatches 277;
                                                                 /product="hypothetical protein"
/protein_id="AAX65948.1"
/db_xref="GI:14524464"
                                                                                                                                                                                                      complement(9922. .10455)
/gene="SMa2389"
                                                                                                                                                                                                                                        complement(9922. .10455)
/gene="SMa2389"
                protein, tetR family"
/codon_start=1
                                                  /transl_table=11
/note="glimmer
                                                                                                                                                                                                                                                                                                                                                              22.3%;
ilarity 64.9%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                 524;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     744
                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                Best_Local
Matches 52
                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
```

ð 셤 à 셤

```
933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           966
                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
         gene
                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="ketopantoate hydroxymethyltransferase"
/protein_id="CAD27226.1"
/db_xref="G1:19338427"
/db_xref="G1:19338427"
/translation="TQKRLTPARISAMKGGKPIVCLTAYTTPWARLLDEHCDLLLVGD
SIGWYLXGHESTIGYTLDMATAHGRAVMRGYDKACYVVDMFFGTYQESKEIAFRNAVR
ILQETGCDAIKLEGGEBMADTIAFLTKRGVPVMGHTGLMPQOYDTAGGTRSVGHSEHE
TSKIRNDAHAIGGSCRAVVIDGTVEPLAREYTGAMHIPTIGIGASSACDGQYLVSDD
ILGLENDFIPREVKRYDELGKRMSARRRRLVPGGPVATVFRQRSTPFRRRS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codoi_start=1
/transl_table=11
/transl_table=11
/product="cyr protein"
/protein_id="cb27227.1"
/db_xref="d1:19338428"
/translation="MKNLTLKQLRYFEALARDGRFRRAADACAISOPALSWOIKELED
ELGGELFERNAREVKLTAFGQTVALRIRDILKGVDELAELARTSRDPFLTRLRIGIIP
ELGGELFERNAREVKLTAFGQTVALRIRDILKGVDELAELARTSRDPFLTRLRIGIIP
GAGGAGCAGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATC 1460
                   RLE438039 4754 bp DNA linear BCT 09-MAR-2002
Rhizobium leguminosarum bv. phaseoli panB (partial), oxyR and katG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIAPYLLPAIINDLNRSFAGIQIEVRETQTSKLVQELAQGQLDTAIVALPVSEPSITE
BLEKREEYLVRRPEDBGKFYPQRBALREMRLLLLEBCHCFROQALSFCKIGFARPRE
VMEGSSLSTLVQWYSAGIGITLIPEMAVPLETRSAHVSISRFGSPQPSRTIGMIWRHS
TPMAKQLVQVSEAVRRSADSRMEQYYAR"
                                                                                                                                                                                                                                                                                                                                                                                                                                              Molecular Genetics and Physiology of a Catalase-Peroxidase of Rhizobiuum leguminosarum by phaseoli Thesis (1999) Department of Biology, Imperial College, University of London, London, United Kingdom.

2 (Dases 1 to 4754)
                                                                                                                                                                                                                                                                            AJ438039.1 GI:19338426
catalase-peroxidase; katG gene; ketopantoate
catalase-peroxidase; katG gene; ketopantoate
dydroxymethyltransferase; oxyR gene; panB gene.
Rhizobium leguminosarum bv. phaseoli.
Rhizobium leguminosarum bv. phaseoli
Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae group;
Rhizobiaceae; Rhizobium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2AZ, UNITED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sensing transcriptional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Direct Submission
Submitted (01-MAR-2002) Williams H.D., Biological Sciences,
Imperial College, Imperial College Road, London, SW7 2AZ, U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            phaseol1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acid biosynthesis'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Rhizobium leguminosarum bv.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="oxyR"
/function="hydrogen peroxide
                                                                                              ACCAGTGGCCTGGAAGGAGCCTGGTCG 1487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:385"
/country="United Kingdom"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="blovar: phaseoli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="panB"
/function="pantothenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(834. .1748)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(834. .1748)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
1. .4754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /strain="4292"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="panB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="oxyR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        regulator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .812
                                                                                                                                                                                                                                                                                                                                                                                                                               Chen, J.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KINGDOM
1401
                                                                         1461
                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
                                                                                                                                                                  RESULT 19
RLE438039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
```

FEATURES

TITLE

```
ADAFARAWFKLTHRDMGPKVRYLGPEVPAEDLIWQDVIPAVDHRILLEKEKY
ATGGITVQETVBTABASASTPRGSDRGANGARVRLAPOKDMBANOPAQLAKYLGVL
ESIOKDFNAAQTGARKISLADLIVLAGAAGGEKAAAAGGNAVSVPFPGRIDASEAQT
DAHSFAALEPRIDGFRYLNGKRHQFWKPERALVDRAQLITLTGPEMTALVGGLRALK
BGAPEHGVFTSRPETLTNDFFVNLLDMGTQWVPVAGKEGFYEGRDRKTGAKWTGTRV
DLIFGSHQFTSRPETLTNDFFVNLLDMGTQWVPVAGKEGFYEGRDRKTGAKWTGTRV
LIFGSRQRAFAEVYGAARGKFVNDFVAAMNKVMNADRFDLV*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2275
                                                                                                                                                                                                                                                                          VNPEGPNGNSDPLASARDIRETFARMANDEETVALIAGGHTFGKKHGAGEPFLIGPE
PEGGALEDQGLGWKSSFGTGVGKDAITAGLEVTWSQTPTKWSNYFFENLFAFEWELTT
SPAGAKQWQAKNAEASIPDAYDASKRHLPTMLISDLALRFDPTYEKISRHFLENPGEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1352
                                                                                                                                                                                         /translation="MDNPTDSAGKCPVAHGNTPRSRSNRDWWPDQLNVQILHHNSGRA
PPLOGAFDYRAEFKRAHLHGIRKBULHAMTDSDDWWPADPFGHYGGLFIRMAWHSAGTY
RITDGRGGAGGGQRRPALNGRPANNALDKARRLLWFFKOKYGNRISWADLLITGNV
ALESMGFKTFGFAGGRADVWEPEELFWGPBGTWLGDERYSGERELAEPLGAVOMGFIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTICTGGGGGGACACTGATGGTCGTGGTAATGTIGCCTTGAATCCATGGGATIT 1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACG---GGAAACTTCAGAAA 1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2336 ATCTCCTGGGCTGACCTTCTGATCCTCACCGGCAACGTCGCGCTCGAATCCATGGGCTTC 2395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    876 CGGGGAGGCGCCAGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGATAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                756 GATATCAAAGATTIGCTGACAACTICCCAGGATIGGIGCCCTGCGGATTAIGGTCATTAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 816 GGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACGGCTCCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAAACGCTGGGATTTGCTGGCGGAAGAGATGACTGGGAGTCGGACCTGGTATACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1173 CCTCTTGCCGCCACGCAGGAGTGGGACTTATGTCAATCCTGAAGGCCCCGGTGGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1233 CCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 4754;
                                                            /function="hydrogen peroxide degrading enzyme"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 326.2; DB 1;
Pred. No. 1e-85;
0; Mismatches 273;
                                                                                                                             /product="catalase-peroxidase"
                                                                                                                                                 /protein_id="CAD27228.1
/db_xref="GI:19338429"
                                                                                                         /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21.9%;
64.9%;
                      1895. .4081
/qene="katG'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
'gene='
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 516; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
```

q

ò 셤

ò 셤 à

```
AGETSYAETVSYYGTEKSETDCDDTPWSKAFLAAAYASRGVKKRCTSGAGSELLMGFH
EAKSLLYLEARCLCLQRGMGVQGTQNGGIDGAPLTATIPGGVRELMAENLIAVWLDLE
CASGNDARSTEBEIRVGAKILPYLIAGSDLICSGMGSILKVDNSFWSLINGEELEDY
LVLQRDFEADGGLTPLPESRAIELRERAVEAIAAVFEELGLSSPTEDMKSSVYYASGS
DDTRSLMPRDVSFISAIKERGITYIDVVKALAKRGFREARNLLDVVKLRLGGDYLQ
TSAMIRNGRIVSAVNDPNDYLGPGSGYRVSEERRLQLNDIRDVLDQKEVLRSEALHEK
DEARHIRYRNLGPAANGSAKDDVVIGISPAFCLKLYRTTAGRILSFYLDGAMLDAIHAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MKRHWIFGLWHSLSAGGLLLGTLFFAASLTPTLLPRTVVTGGVL
SGFALAAGYGIGVFGRWLCYYLELPAPRGLRAKLVVAAVGCLLVACTELWWAAQWQNS
YKTLMGLDLVESAHPLKYGLLALVTFALVIALARTGQLTIFKVSTRYSRFAPRRYSNI
VGVIYSVALFWSITGSCHFRYATHADSFYRGYDALVEBETARPTDPDKTGSASLLD
WNELGRTGRAFVAEGFTGEEHAFTNKKALQPIRVYVGLRSADSPEKRARLALNELIR
                                                                            YRDVKVSARLLGIALILEVIMLVIFSLGVIFAHGGTNFSGDSLNVFKVFTPVAEGKVG
DVAIPAGEAAVGIFMAFWSWVGFEMAPNYAEESRDPRRIIPQSLLISYIGGLFYTFV
SWCAVAAY PTEADMVAKAFSDGVNFFLTPVQSFVGGMGVQLMSLLILTSSFACGMAFH
NTASRLYSLLARGADA HETHDHKSPHRASALGSVLAAVWVLLYGLAYGFDDPS
GQAWLGYYTLRPVGTGLLLVLQAVGSLAITWMFKRUGGGSMLTYTIAPLISLVVQLY
LVYTLVANLATLGGTNGFRARSILVYGLALLILUGGTNGFVALGFUGTNGHWVBG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RSLSQKMPGWNNLLLPRNDAPSQLVAELQPAGDEIVYTKTTDSALTGYNLRLILHNLG
IRNVICCGIFTDQCVSSTVRSLADESYAVIVLEDCCAAATEDLHRKELEIINMIYCHV
MSSGELCKIMALAK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /traislation="Whitradyplaetopgavkgkrgkslaeitldsvlagdvtwedl
RITPQALQAQADVARDVGRPTLALNFERGAELVEVPQDFIMQVYELLRPGRAKSKEEL
LQAATTWRDTYQAERIARFIEEAAETYAARGLFTFRF"
complement(3601. .5871)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation-"Wipklinrwkrfadwderplildkfaaedpangfsafsspadpkp
GIGIKDGRVISLDGVLEHDYDWIDRFIARHHIDPEVAPEAWALDSATVARWLVDMNVP
RFTLVRLAHGWTPAKLAEVVSQLNALEIAFAYSKMRARKTPGNQAHVTNAKDDPLQLA
/translation="MAIETARGTIDVSKSNSINLLHSKAVGLAGVLFLAVTGAAPMSA
MLGNVPFAAGYGIGKYTPAAFLMATIVLTIFSIGYAAWASRVSSVGGFYSFISQGLGR
EVGMSAGIGSLACYSLFEASLTGLFAFFGNLWLSQHFGINVPWIVLALAMIVVIAALA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MSWKTGFRSLYYLGAPEPDDPVLVPAQTAILVIDVQNTYLKRPD
RASLSQQEQHRYDLWTPFHERMHGTVIPNTARLLALARQNGIECLFARIACHTKDGRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADAATAVAFGFDEIETTMRVSRNAWSNAVACAVGGAVGRWGTLFQCSSEEAEELRIAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLKARVVRFRHTADTSFLGLSAARLAGSGIGIGIQAKGTAVIHQRDRQPHNNLELFSN
APITRLEHYRALGANAAAYALGEMPEPVVVPQRGEAMGSRYHARVALIYAIETGLTEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product-"glycerol dehydratase small subunit"
/protein_id-"BAB52959.1"
/db_xref-"GI:14026362"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           dehydratase large subunit"
                                                                                                                                                                                                                                                                                                                                                                                              /note="hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note-"hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="BAB52961.1"
/db_xref="G1:14026364"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /protein_id="BAB52958.1"
                                                                                                                                                                                                                                                                                                   /gene="ml16720"
complement(2477. .3175)
/gene="ml16720"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(3601. .5871)
/gene="ml16722"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(6037. .7680)
/gene="ml16723"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(3185. .3604)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(6037. .7680)
                                                                                                                                                                                                                                                                                 complement(2477. .3175)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="GI:14026361"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="glycerol de}
/protein_id="BAB52960.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="GI:14026363'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAPEEVDVILTGVKS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="mll6721"
complement(3185.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                      table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="ml16721"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="ml16723"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="ml16722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                           340857 bp DNA linear BCT 15-MAY-2001
AP003010 BA000012
AP003010.2 GI:14026358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EAAAAEIGHGAFGVVGDVTSLASIESALAVVAARNGSIDVLCANAGIFPQARLEDMĪS
QQMDEVVDTNLKGTFHAVKAAVPYLKTSNQGRIVLTSSITGPITGFPGWSHYGATKAG
                       GCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGA 1412
                                                                            2696 GGGGAACC---GTTCCTTATTGGGCCGGAAGGCGGCGCAATCGAGGACCAGGGT 2752
                                                                                                                                       CTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTG 1472
                                                                                                                                                                 2753 CTCGGCTGGAAGAGCTCGTTCGCCACCGGCGTCGGCAAGGATGCCATCACCGCCGGGCTC 2812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MTQSLKGRSVVVTGGSKGIGKGIARVFALSGAKVAIVARHPDQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QLGEMRTACIELAKYGITVNAVMPGNIVTEGLVGLGEDYQKTMAASIPLKRLGTVEDI
GYAALYFASKEAGYVTGQTIIVDGGQILPESLEALA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kaneko,T., Nakamura,Y., Sato,S., Asamizu,E., Kato,T., Sasamoto,S., Watanabe,A., Idesawa,K., Ishikawa,A., Kawashima,K., Kimura,T., Kishida,Y., Kiyokawa,C., Kohara,M., Matsumoto,M., Matsuno,A., Mochizuki,Y., Nakayama,S., Nakazaki,N., Shimpo,S., Sugimoto,M., Takeuchi,C., Yanmada,M. and Tabata,S. Complete genome structure of the nitrogen-fixing symbiotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae group; Phyllobacteriaceae; Mesorhizobium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (05-DEC-2000) Takakazu Kaneko, Kazusa DNA Research Institute, The First Laboratory for Plant Gene Research; Yana 153-3, Kisarazu, Chiba 292-0812, Japan (E-mail:kanekoékazusa.or.jp, URL:http://www.kazusa.or.jp, Tel:81-438-52-3935(ex.2338), Fax:81-438-52-3934) on May 11, 2001 this sequence version replaced gi:11994985.

1. 340857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
/product_"probable amino acid permease"
/protein_id="BAB52957.1"
/db_xref="G1:14026360"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="3-ketoacyl-CoA reductase"
/protein_id="BAB52956.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mesorhizobium loti (strain:MAFF303099) DNA.
Mesorhizobium loti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Mesorhtzobium loti"
/strain="MAFF303099"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(851. .2377)
/gene="mll6718"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(851. .2377)
/gene="mll6718"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="GI:14026359"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:381"
complement(6. .770)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="ml16717"
complement/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bacterium Mesorhizobium loti
DNA Res. 7 (6), 331-338 (200
21082930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(6. .770)
/gene="mll6717"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/trans1_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 (bases 1 to 340857)
Kaneko, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                 1473 GAAGGAGCCTGGTCG 1487
                                                                                                                                                                                                                                                                                 Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (sites)
                                                                                                                                 1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                        RESULT 20
AP003010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCUS
```

Conservative

532;

```
Matches
                                                                        ð
                                                                                                                           g
                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
/protein id="mab52965.1"
/protein id="mab52965.1"
/db_xref="c1:14026368"
/translation="mayrementary recommended from the commended from the commende
                        GADTAQALERDVYDYWIRLPRNSRPRLYLHGLSLGAMNSERGTDMFDVVGDPFOGALW
SGPPYRSGLWRSFTRDRSPGSPAWLPRFRNGSIVREMNQDGVAADPGFVWGPMRIVYL
OYASDPVTFFDYRDLYREPDWIKPPRGPDVSPELRWYPVVTFLQLTLDMAMATTAPIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MSDLVVIVYPTEARAEEVRORLFALQKEYLINISDAVIATKTEA
ROWKLMQIMMTTVAGAVSGSFWGLLIGVIFLNRVIGYAIGAASGALGGALTDVGINDA
FMKDLSATLQPGNAALFVLIHGMTADKVLSAIKGFGGVVLKTSLDETKEQILREALSQ
ASEAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="Bab52963.1"
| Daxref="G1:14026366"
| Translation="WYNPIATGILVLAALYFARSIIMPLAFSLFVIALAMPIQMALQR
RIPRLAALLITLLLVVLVIVIVGSAIVWGLGELSQWIPFYNTGRLQAIYASWTDWLEGH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GIAIVSPLGELFSISRLVGLTHSLVTRLNSVAGFÄVLTFIFVMLGLLEAEDLQRRLRS
SALAPQPGEMLLHIGREIAGKIRREMVYSLACILTGLVVMPATIVAGLELASMMAIA
FALNY IPFTGPLMAT IPFTLEATAGSGSWQLALIVEVGLNYIQFAIGSYLEPFLTGAS
LAISPEAVMFAVFFWSFMWGVPGAFIGVPILLIVVVTWCAHEQSTRMIATLLSGGRQGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="G1:14026367"
/translation="MANAAPAGWNAHAILEPPANPAAEPTLVVPEQTPIPCFEFSTGD
LPPRDQFAAWRQSFATWLDFVEPGDTEAGFAGTQVIWDLGDLALAQVSTNGLDFTSLA
GHVRRDPVDHWLVTLIQDGRSQTITPSKSFDGDAGSVQVHPLGRVFEGSVTDSEMLLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FVPRDFCRDMSWGLAAAĒFSVIRGGMGPLLADYLASLŸQRLPTWGVNDLPGLLSATRA
MQVOIAPSPDHLTBAHDF 18ATLLERARRFVQHHLEQPDLSIEGWTRELGISRSRLY
RLFBASGGTVHY LORRLLAAHAALADPNDRRRILDIADEYGFGDGAEFSRAFRREFG
YCPSEVRIGVKNGPSHWHMDEVETAAPGLRLGQLLRRLQAQ
VGGFQRSVLVVVTPTGSGWIDPAAMESLEYLQNGDVASVAVQYSYLASWLSLLVEPDY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 340857;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/product="multidrug-efflux transport protein"
                                                                                                                        HGHVYAPGDYVEGWIEVANVOGWSLQQIAELKRHLGRLP"
7907. a8404
7908-"mllf0724"
7907. 8404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="transcriptional regulator"
/protein_id="BAB52964.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 323.2; DB 1
Pred. No. 2.4e-84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="mlr6726"
9371, 10375
/gene="mlr6726"
/note="hypothetical protein"
                                                                                                                                                                                                                                                                                             protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="ml16729"
complement(11950. .12498)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(11950. .12498)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(12495. .15662)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="ml16730"
complement(12495. .15662)
                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="BAB52962.1"
/db_xref="GI:14026365"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IDLISHGMAWLTYGWLPTAKTA"
                                                                                                                                                                                                                                                                                             /note="hypothetical/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="mlr6727"
10712. 11839
/gene="mlr6727"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _table=11
                                                                                                                                                                                                                        7907. .8404
/gene="mlr6724"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="ml16729"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="mll6730"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .10375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21.7%;
64.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10712.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
```

```
197699 CCGCTCAACAGCTGGCCGGACAATGTCAACCTCGACACAGCCCGCCGGCTTTTGTGGCCC 197758
                                                                                                                                                                                                                                                                                                                                                                               197759 ATCAAGCAGAAATATGGCCGCAAGATCTCCTGGGCCGACCTTCTGATCCTCACGGGAAC 197818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           198059 GACACATTCGCGCGTATGGCGATGAACGACGAGGAAACCGTAGCACTCATCGCCGGCGGC 198118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        198058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAAGGCGCTGATATCGAGCAGCAGGCCTTGGCTGGGCGAGCAAATTCGGCACCGGCAAG 198235
                                                                                                                                                                                                                                                                                                                                                                                                                           1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATACATTIGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCT 1385
 ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCT 07-DEC-2001
                                                                                                                                                                                                                               911
                                                                                              791
                                                                                                                                                                 851
                                                                                                                                                                                                                                                                                              971
                                 CACAGCCCTGAATCAAATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAG 731
                                                                                                                   1 (bases 1 to 198050)
Salanoubat,M., Genin,S., Artiguenave,F., Gouzy,J., Mangenot,S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1092 TGGGAGTCGGACCTG---GTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATA---AAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTTÄT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGGCCTGATCGCGGGAGGG
                                                                                                                                                                                                                          GGAACATACAGGACATATGATGGCCGGGGGGGCCCAGTGGTGGTGGTGGAACGTTTTGAA
                                                                                                                                                                                                                                                                                           CCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCAATCCTGAAGGCCCCGGTGGAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGG
                                                                                                                                                             TGCCCTGCGGATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCC
                                                                                                                                                                                                                                                                                                                                                             GTCAAGAAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                          1032 GTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGGATATGGAGGCTCTGAAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGATTGG
 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sednence;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     beta subdivision; Ralstonia group,
 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        198236 GGCGGTGACGCCATCGCCAGCGGTCTGGAAGTCATTTGGACGAC 198279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1446 GGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGAC 1489
   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chromosome,
 283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          198050 bp
Ralstonia solanacearum GMI1000 c
segment 5/19.
ALG46061 ALG46052
ALG46061.1 GI:17427781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ralstonia solanacearum.
Ralstonia solanacearum
Bacteria; Proteobacteria;
Ralstonia.
ő
                                                                                                                                                               792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1386
                                                                                              732
                                                                                                                                                                                                                            852
                                                                                                                                                                                                                                                          197639
                                                                                                                                                                                                                                                                                           912
                                                                                                                                                                                                                                                                                                                                                             972
                                                                                                                                                                                                                                                                                                                                                                                                                                                        197819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         197879
                                                                                                                               197519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     198119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      198176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 21
AL646061/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
```

gene

CDS

```
Direct Submission

Li Submitted (05-DEC-2001) Genoscope and CNRS UMR-8030, 2 rue Gaston Cremieux, CE9706, 91057 Evry Cedeax, France, Laboratoire de Biologie Moleculaire des Interactions Plantes "Microorganismes INRA-CNRS, BP27, 31326 Castanet-Tolosan Cedex, France, Fondation Jean Dausset-CEPH, 27 rue ulliette Dodu, 75010 Paris, France, LWGM CNRS 118 Route de Narbonne, F 31062 Toulouse Cedex 4, Genoscope and INRA URGV, 2 rue Gaston Cremieux, CP5706, 91057 Evry Cedex, France, Laboratoire de Biometrie et Intelligence Artificielle INRA, BP27, F31326 Castanet-Tolosan Cedex. Laboratoire de Genetique Cellulaire INRA, BP27, F31326 Castanet-Tolosan Cedex. Christian.Boucher@toulouse.inra.fr http://sequence.toulouse.inra.fr htt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="maetrqaeqadivvvgsgvagalvayelaragksvlmleagprl
prwelverfrnqadkmdfmapypstpwaphpergpdnnyllikgehkfdsgyiravgg
ttwhwaastwrflpndfklrsvyglardwpiqxddleryygraeaalgvwgpndeelg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      translation-"MHTRPPSSDGDDPAGLTRRQWLQSALAATAASLVGSVTLYAVAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APGEPLDAFMGLSQALTARSALDRAVGARLLAALQQASAGFAAQLRPLAQSLAAGTLS
GLQQETALRILQAWYTGVVDGTVVTYEQALMYGVVSDILVIRTYCPNRPGFWAEPPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPRSQPYPMAPLPLSFNERTVKDALNAHDPALRVVTEPVARNSRPYDGRPTCCGNNNC
MPICPIGAMYNGIVHVEKAEQAGARLIENAVVYKLEVGAGKRIVAAHYKDPKGVDHRV
Arlat, M., Billault, A., Brottier, P., Camus, J.C., Cattolico, L., Cabadler, M., Chlosne, M., Claudel Frenard, C., Cunnac, S., Demange, N., Gaspin, C., Lavie, M., Moisan, A., Robert, C., Saurin, W., Schiex, T., Siquier, P., Thebault, P., Whalen, M., Wincker, P., Levy, M., Genome sequence of the plant pathogen Ralstonia solanacearum Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="PUTATIVE TRANSMEMBRANE DEHYDROGENASE (SMALL SUBUNIT) OXIDOREDUCTASE PROTEIN"
/protein_id="Cab14472.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product-"PUTATIVE TRANSMEMBRANE DEHYDROGENASE (LARGE SUBUNIT) OXIDOREDUCTASE PROTEIN"
/protein_id="CaD14473.1"
/db_xref="G1:17427783"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /Ec_number="1.-.-"
/function="small molecule metabolism"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "EC_number="1.-.-."
"function="small molecule metabolism"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="Product confidence : putative
Gene name confidence : hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Product confidence : putative
Gene name confidence : hypothetical
predicted by Codon_usage
predicted by FrameD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Raistonia solanacearum"
/strain="GMI1000"
/db_xref="taxon:305"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/evidence=not_experimental
/trans1_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     predicted by Codon_usage
predicted by Homology
predicted by FrameD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'db_xref="GI:17427782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    151. .642
/gene="RSc0770"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'note-"RS05084"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             151. .642
/gene="RSc0770"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="RSC0771"
/note="RS05083"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'gene="RSc0771"
                                                                                                                                                                                                                                                                                                                             2 (bases 1 to 198050)
Boucher, C.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .2261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
```

```
NLAFLKRAPYLPKGDWTPTWNRGAYLAGGLAHCGTCHTPRGFAWGEKAWDERGKGYLA
GESTLAGWSAYNITSDPYSGLGGWREDGLYQYLRTGSYPGIGGAAGPWGEAVQHSFSRM
TERDYRAIABYLRTVPAVSTGAQRARHGWGTPATDVIALRGKPIETTIDAARLYLGNC
ATCHQADGRGFPEDGRYPPLLHNSAVGARDTRNLYQYMLHGIERRAGDRHIGMFAFGRQ
LSDAQLAALANYYTRQFGDFATPALTAADEIAKRRMFQ"
                                                                IRDQAARYVQFDSFHEILPLPENRIVPSATGTDALGIPRPEITYRIDDYVKRSAVHTR
EVYATAARVLGGTDVQFHDDFAPNNHITGATIMGSDPKDSYVDKDCRTFDHPNLFISS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MRTSARVILGLGITPIVIVAAAIVFVLTFDWNRARPYLNDHVSQ
AVGRPFAINGDLALTWKKPEGESGWRAYVPWPRLIASDIAIGNPDWARQPHVATVQRL
TFVLEALPLLAHRIVIPSVTLDTPMIALERDSGNRNNWTFHFGAQDSQPSDWKLELRE
egkwfvlaangietpklmlmstgadfpkgvgnrsdmygrnlmdhpgtgvsfyadrklw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="mrrakaasflllsvlgaaaaardadapaaagikrgerilaiagd
cvachtapggkpfagglploipmigtiyssniipdpktgigkwryedferavrggvsd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PAAPDPQQPYGIAMTVKGTYNNAAIRGSGKAGGVLRLQDARRPYPLQADVTVGKTRID
LAGTLTNPSSLTALDLRLHLSGASMAHLYPLTGVVLPDTPPFDTRGRLIGELRRQGSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DGENLYPAMPYPSYAKINDADMRDLYAYFRYGVAAVQYAPPPGTIRWPLNMRWPLKLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IAFSKGSVQLDDEVKRIHLAATLDTVDNQALYTAASGTAIRGSEPAAPSASGAAASTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WRYEQFTGRVGGSDLGGTLTFAMRPEPGQRPQLTGELVSHQLLFADLAPIIGADSNAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GEINGDARLSATGNSVAALLGASNGELKILVEQGTVSKFILEAMGLNVGNVILTKLFG
DKQVSINCAAGDFAVSDGLAQARTFVVDTQDAVIDVTGATSFKHESLDFTIHPDSKGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RVFSLRTPLYVKGTYKHPDVSVNPAVALRAGGAVALAFAAPVAAVLPVLELQPADDS
PCGKLLADVRQRPTAPPPGKVYRSGGTGRAADGSPKDPAAAPARQPALPLRDPTTAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KORRDAPVROPADKVLPVEPFRTDRWNAIDADVKFTGERIVRTADLPIDHLVTHIKLO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DAVLTLDPLNFGVAGGTLTSNLRLDGQSAPMQASAALAARHFKIRQLFPNIESMHASI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /function="miscellaneous; hypothetical/global homology"
/note="Product confidence : probable
Gene name confidence : hypothetical
predicted by Codon_usage
predicted by Romology
predicted by FrameD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /function="miscellaneous; hypothetical/global homology"
//note="Product confidence: probable
Gene name confidence: hypothetical
predicted by Codon_usage
                                                                                                                                                                                                                                                                                                                                             /EC_number="1.-,-,-" ^\prime /Eunction="small molecule metabolism; energy transfer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /evidence=not_experimental
/transl_table=11
/product=PUTATIVE OXIDOREDUCTASE DEHYDROGENASE
(CYTOCHROME C SUBUNIT) SIGNAL PEPTIDE PROTEIN"
/protein_id="CAD14474 1"
/db_xref="G1:17427784"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product-"PROBABLE TRANSMEMBRANE PROTEIN"
                                                                                                                                                                                                                                                                                                                                                                                                              electron transport"
/note="Product confidence : putative Gene name confidence : hypothetical predicted by Godon_usage predicted by Homology predicted by FrameD"
                                                                                                                                           SATMPTVGTVNVTLTIAALALRIADQLKKEA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(3559. .5781)
/gene="RSc0773"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(3559. .5781)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="CAD14475...
/db_xref="GI:17427785"
                                                                                                                                                                                                                                                                                2263. .3552
/gene="RSc0772"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="RSc0774"
/note="RS05080"
                                                                                                                                                                        2263. .3552
/gene="RSc0772"
                                                                                                                                                                                                                                            'note="RS05082"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="RS05081"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /qene="RSc0774"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="RSc0773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5883. .6785
                                                                                                                                                                                                                                                                             2263
```

gene

CDS

gene

CDS

1241 8383 8323 1361 8263 1421 8207 1481

1301

```
8206 AGCAGCCGCTTCGGCAACGGCAACGCCATCACCAGCGGCCTGGAAGTGACC 8147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BCT 05-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
Actinomycetales; Streptomycineae; Streptomycescales; Brovok, II., de Orue Lucana, D.O., Mueller, D. and Schrempf, H.

The mycelium-associated Streptomyces reticuli catalase-peroxidase, its gene and regulation by Furs.

2 (bases I to 2904)

Borovok, I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cpeB gene; Fe regulatory protein; furS gene
  GACCTCATGATCCTCACGGGCAACGTCGCGCTGGAGTCGATGGGCTTCAAGACCTTCGGC
                                                              GCCACGCAGATGGGACTTATTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCT
                                                                                                                                                                                                                                CTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAG
                                                                                                                                                                                                                                                                                                             8262 CCAACGTG----GGGCCGGAGCCGGAAGCGGCCGGCATCGAAGAACAGGGCCTGGGCTGG
                                                                                                                                                  ACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                              8322 Accercececrearceceeceeceacrecriceceaagacecaceeceer
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1362 GAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGGATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1422 AAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCC
                                           TTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTG---GTATACTGGGGGCCTGAC
                                                                                                                          AACAAGCCTCTTGCAGATAACCGGGATAAAAACG----GGAAACTTCAGAAACCTCTTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (23-JUL-1997) I. Borovok, Angewandte Genetik der
Mikroorganismen, FB Biologie/Chemie, University of Osnabrueck,
Barbarastrasse 11, Osnabrueck D-49069, FRG
revised by submitter 12-Oct-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Streptomyces reticuli"
/strain="Tu45, described by H.Zahner, University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Streptomyces reticuli furs and cpeB genes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    minilibrary"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2904 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="taxon:1926"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entry: Y14336.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone_lib="BamHI
78. .533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Streptomyces reticuli. Streptomyces reticuli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="pUBB1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="furs"
78. .82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="furs"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      catalase/peroxidase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Y14317.1 GI:3758888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tuebingen"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1, .2904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1482 TGGTCGAC 1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8146 TGGACCAC 8139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Related
8622
                                        1068
                                                                                                                      1125
                                                                                                                                                               8502
                                                                                                                                                                                                        1182
                                                                                                                                                                                                                                                                                        1242
                                                                                                                                                                                                                                                                                                                                                                       1302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT SRFRPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS
                                                                               8
                                                                                                                  ŏ
                                                                                                                                                           g
                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                        ò
                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VDHKLIDTQDIAALKARIILASGLSVSQLVSTAWASASTFRGSDWRGGANGARIFILAPQ
KDWEANQPAQLAKVLETLESIQGAFNGAQSGGKKVSLADLIVLAGCAGVEQAAKNAGH
AVEVPFTPGRMDAAQAQTDVESFAVLEPIADGFRNYQKGKYTLPAEALLVDKAQLLTL
                                                                                                                                                           /translation="MSHVAISAPAHPPALDDEYARRFGGVARLYGPQALERFAAAHİC
VIGYGGYGBWAEALARGIGRLTLIDLDHIAYSNTINRQIHAGDAYGKAKVDAAARR
VIELNPRAETSRIDAYEWYDEWDLALLGHPFDYVVDA IDAVKYRTAIVAFCQRTGTRVY
TGGAAGGQLDPTRIRVADLARTIQDPLLAKYRGNLRRQHGFPRDPRARFGIDAYYSDE
                                                                                                                                                                                                                                          PLRYPEPEQQACAVEVPAESSHAĞIDDLAAAGAIEVVNAPPAPQPSRGPGGLACAGFĞ
SSVCVTAVFGMVAASTALRAIAAV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAPEMTVLVGGLRVLDTNIGQTRHGVFTQRPESLTNDFFVNLLDMGTEWKATDGRDVF
EGRDRATGALKWTGTRVDLVFGSHSQLRALAEVYGSADAQAKFVRDFVAAWDKVMNLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DPAYEKISRRFYEHPEQFADAFARAWFKLTHRDMGPRARYLGPEVPAEALIWQDPIPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGA 1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="mGPEPEAAGIEEQGLGWSSRFGTGKGTDAITSGLEVTWTTFPTQ
WSNNFFQNLFGYEWELTKSPAGAHQWVAKDAAETIPDAHDPSAKHLPTMLTTDLSLRF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTT 707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTGAAAAAAGATATCAAAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAAATACGGCTCCAGTATTTCCTGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                          /function="cell processes; protection responses; detoxification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1; Length 198050;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
/product="PROBABLE PEROXIDASE/CATALASE (CATA)
OXIDOREDUCTASE PROPEIN"
OXIDOREDUCTASE PROPEIN"
/db_xref="G1:17427787"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 314.8; DB 1; Length 1
Pred. No. 6.7e-82;
0; Mismatches 302; Indels
                                                                                                   /product-"PROBABLE TRANSMEMBRANE PROTEIN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                       : probable
                                                                                                                                                                                                                                                                                                                                                                                                                                                 /noter Product confidence : prob
Gene name confidence : putative
predicted by Codon_usage
predicted by Homology
predicted by FrameD*
                                                          /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                          /note="RSC0775; RS05079"
complement(6890. .8257)
                                                                                                                                                                                                                                                                                   complement(6890. .8257)
                                                                                                                                                                                                                                                                                                                                                                                         /EC_number="1.11.1.6"
                                                                             /transl_table=11
                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
                                                                                                                                                                                                                                                                                                       /gene="katGb
                                                                                                                                                                                                                                                                                                                                                                   /gene="katGb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 21.1%;
Best Local Similarity 63.2%;
Matches 536; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            888
```

g

ð g ò 윱 ŏ

ö

g ö 셤 g

ò

```
DLFILAGNYALENSGFRTFGFGAGREDVWEPDLDVNWGDEKAWLTHRHPEALAKAPLG
ATENGLIYYNPEGPDHSGEPLSAAAAIRATFGNWGNNDEETVALIAGGHTLGKTHGAG
PTENVGPDPEAAPIREGCAWASTYGSGVGADAITSGLEVVWPOPTOWSNYFENLE
KYEWVQTRSFAGAIGPEAVDAPEIIPDPFDPSKKRKPTMLVTDLTLRFDPEFEKISRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LLNOHSNRSNPLGEDFDYRKEFSKLDYYGLKKDLKALLTESQPWWPADWGSYGGERR
MAWHGAGTYRSIDGRGGAGRGQQRFAPLNSWPDNVSLDKARRLLWPIKQKYGQKISWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MSTSDDIHNTTATGKCPFHQGGHDQSAGAGTTTRDWWPNQLRVD
                                                                                                                                                                                                                                                                            1278
                                                                                                                                                                                                                                                                                                                                                                                                                                  AAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTG 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCT 26-APR-1993
                                                                                                                                          Draft entry and computer-readable sequence [1] kindly submitted by P.C. Loewen, 22-NOV-1988.
Location/Qualifiers
1033 ACGGCCAGAGCATCTCCTGGGCCGACCTGCTGATCCTCACCGGCAATGTCGCCCTGGAGA 1092
                                       CCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCGGACC 1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                encoding catalase HPI of Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                           1213 GCGAGCTGGAGAACCCGCTCGGCGCGGTCCAGATGGGCCTGATCTACGTCAACCCGGAGG
                                                                                                                                                                                                                                                                                                  TGGAGGAGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCA
                                                                                                                   1105 TG---GTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACG
                                                                                                                                                                                                                                                                            GCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCAC
                                                                                                                                                                                                                                                                                                                                                        1279 GTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGCATACATTTGGTA
                                                                                                                                                                                                 Sorby, P.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ECOKATGA 2805 bp DNA linear BC
E.coll katG gene encoding catalase HP1, complete cds.
M21516
M21516.1 GI:146534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Escherichia.
1 (bases 1 to 2805)
Triggs-Raine, B.L., Doble, B.W., Mulvey, M.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacteriol. 170 (9), 4415-4419 (1988)

    1. '2805'
/organism="Escherichia coli"
/db_xref="taxon:562"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1459 TCACCAGTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /protein_id="AAA24040.1"
/db_xref="GI:146535"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="catalase HP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nucleotide sequence of katG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             catalase; catalase HP1.
E.coli (strain K-12) DNA.
Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J. Bacter
88314956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3045098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             coli
                                                                                                                                                                                                                                                                                1219 (
                                                                                                                                                                                                                                                                                                                                                                                                                                      1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1399
                                         1045
                                                                                                                                                                                                 1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 23
ECOKATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                            g
                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                      ă
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                            셤
                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                            δ
                                         ò
                                                                                                                       ò
                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGCCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAAT 1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    THAAGPADHYGADPEAASLEEGGLGWRSTYGTGRGADAITSGLEVTWTSTPTOWSNGF
FKNLFEYEYELEQSPAGAHQWVAKNAPEIIPDAHDPSKKHRPRMLTTDLSLRFDPIYE
PISRRFYENPEEFADAFARAWYKLTHRDMGPKSLYLGPEVPEETLLWODPLPEREGEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IDDADIAIIKTKILESGISYSQLYTAWASASTFRASDKRGGANGARIRLAPORGWEV
NDPDQLAQYLRTLENYQQEFNASSGAKKYSLADLIYLGGAAGYEKAAKEAGFEIQVPF
TPGRYDATEEHTDVESFEALEPTADGFRNYLGKGNRLPAEYLLLDKANLLNLSAPEMT
                                                                                                                                                          /db_xref="SPTERMBL:087863"
//translation="WIMASPTPTTARELRGAGLRVTAARVALLETVRDGDHLGVEAIAS
GVRDRVGHISLQAVYEALHALTAAGLVRRIEPAGHPARYEGRVGDNHHHIVCRSCGAV
ADVDCAVGDAPCLIRADDHGFAIDEAEVVXWGLCPDCSTGRSS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="Sptremed:087864"
/translation="MTENHDAIVTDAKSEGSGCCPVAHDRALHPTQGGGNRQWWPERL
NLKILAKNPAVANPLDEDFDYAEAFKALDLAAVKRDIAEVLTTSQDWWPADFGNYGPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MIRNAWHSAGIYR ISDGRGGAGAGORFAPLNSWPDNGNLDKARRLLWPVKKKYGQSI
SWADLLILIGNVALETMGFKIFGFGGGRADVWEAEEDVYWGPETTWLDDRRYIGDREL
ENPLGAVQMGLIYVNPEGPNGNPDPIAAARDIRETFRRMAMNDEETVALIAGGHTFGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VLVGGLRVLGANHQQSQLGVFTKTPGVLTNDFFVNLLDMGTTWKATSEDQTTFEGRDA
ATGEVKWAGSRADLVFGSNSELRALAEVYASDDAKEKFVKDFVAAWHKVMDADRFDLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             973 GGCCGGACAACGCGAACCTGGACAAGGCCCGCCGTCTGCTGTGCCGGTCAAGAAGAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         913 TCAGCGACGGCGCGCGCGCCGGCGCCGGCCAGCAGCGCTTCGCCCCCCCTCAACAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGGCCCAGTCAAGAAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             685 CAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          745 CTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      805 ATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 309.2; DB 1; Length 2904; Pred. No. 1.1e-80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        283;
                                                                                                         protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="catalase/peroxidase"
/protein_id="CAA74698.1"
/db_xref="GI:3758890"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         384 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                /product="Fe regulatory |
/protein_id="CAA74697.1"
/db_xref="GI:3758889"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2830. .2864
/gene="cpeB"
/note="rho independent"
1 1074 c 966 g 38
                                                                                                                                                                                                                                                                                                                                                                                                                        'evidence=experimental
'transl_table=11
                                                                  /evidence-experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                 'EC_number="1.11.1.6"
                                                                                                                                                                                                                                                                                555. .560
/gene="cpeB"
/note="putative"
567. .2789
                                                                                                                                                                                                                                                                                                                                                                                                     'codon_start=1
                                                 /codon_start=1
                                                                                                                                                                                                                                           555. .2864
/gene="cpeB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 20.8%;
Best Local Similarity 64.0%;
Matches 518; Conservative
                                                                                                                                                                                                                                                                                                                                                                gene="cpeB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                      RBS
                                                                                                                                                                                                                                                                                                                                              CDS
          CDS
```

셤

ð

g

Ω g ò

ò

g

q

ò

οy

```
Change Project's World Wide Web site
(http://www.genetics.wisc.edu). *** The E. coli K12 sequence and
its annotations are periodically updated; this is version M54. No
sequence changes. Annotation updates: updated gene identifications
and products; all new functional assignments courtesy of Monica
Riley; added promoters, protein binding sites, and repeated
sequences described in reference 1. The unique numeric identifiers
beginning with a lowercase 'b' assigned to each gene (protein or
RNA-encoding) are now designated as gene synonyms instead of
labels. This should allow them to be searched for in Entrez as gene
                                                                                                                                                         1 (bases 1 to 13840)
Blattner, F.R., Plunkett, G. III, Bloch, C.A., Perna, N.T., Burland, V., Riley, M., Collado-Vides, J., Glasner, J.D., Rode, C.K., Mayhew, G.F., Garegor, J., Davis, N.W., Kirkpatrick, H.A., Goeden, M.A., Rose, D.J., Mau, B. and Shao, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /sub_strain="MG1655"
/db_xref="taxon:83333"
compLement(24. .52)
/note="factor Sigma70; promoter metjp3; documented +1 at 4126046"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (02-SEP-1997) Guy Plunkett III, Laboratory of Genetics, University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA. Email: ecoli@genetics.wisc.edu Phone: 608-262-2534 Fax: 608-263-7459
                                                                                                                                                                                                                                                                                                                                                                                        Submitted (16-JAN-1997) Guy Plunkett III, Laboratory of Genetics, University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA. Email: ecoli@genetics.wisc.edu Phone: 608-262-2534 Fax: 608-263-7459 J. (Dase I to 13840) Blattner, F.R. Direct Submission
                                                                                                            Escherichia coli K12
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
Escherichia coli K12 MG1655 section 358 of 400 of the complete
                                                                                                                                                                                                                                                            The complete genome sequence of Escherichia coli K-12 Science 277 (5331), 1453-1474 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism-"Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                  AE000468 U00096
AE000468.1 GI:1790374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /strain-"K12
                                                                                                                                                                                                                                                                                                                                  2 (bases 1 to 13840)
Blattner, F.R.
                                                                                           Escherichia coli K12
                                                                                                                                                                                                                                                                                                                                                                           Direct Submission
                                                                                                                                               Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          promoter
                                                      VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
DEFINITION
                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
TITLE
                                      ACCESSION
                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                 REFERENCE
                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                  PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                 ALPVLEKIQKESGKASLADIIVLAGVVGVEKAASAAGLSIHVPFAPGRVDARQDQTDI
EMFELLEPIADGFRNYRARLDVSTTESLLIDKAQQLTLTAPEMTALVGGMRVLGGNFD
GSKNGVFTDRVGVLSNDFFVNLLDMRYEWRATDESKELFEGRDRETGEVKFTASRADL
VFGSNSVLRAVAEVYASSDAHEKFVKDFVAAWVKVMNLDRFDLL"
625 a 721 c 805 g 654 t
About 89 minutes. on K-12 map.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACGGTGCCG---GTCCGACATCAAATGTAGGTCCTGATCCAGAAGCTGCACCGATTGAA 1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCT 01-DEC-2000
                 IDLKFAIADSGLSVSELVSVAWASASTFRGGDKRGGANGARLALMPQRDWDVNAAAVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  984 TACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAA 1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .044 TCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCGGAC 1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACGGGAAA 1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGCAGGGACTGGGAAAAAAAAAATGTGGTACAGGAAACGGCAAATATACCATCACC 1463
FLNDPQAFNEAFARAWFKLTHRDMGPKSRYIGPEVPKEDLIWQDPLPQPIYNPTEQDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAG
                                                                                                                                                                                                                                                                            302 TCTAACCCACTGGGTGAGGACTTTGACTACCGCAAAGAATTCAGCAAATTAGATTACTAC
                                                                                                                                                                                                                                                                                                                                                 GGCCTGAAAAAAGATCTGAAAGCCCTGTTGACAGAATCTCAACCGTGGTGGCCAGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCCAGTCAAGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      722 CTGGATGTTAACTGGGGTGATGAAAAAGCCTGGCTGACTCACCGTCATCCGGAAGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1224 GGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1344 CATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAG
                                                                                                                                                                                                                                                                                                               744 GCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGAT
                                                                                                                                                                                                                                                                                                                                                                                        804 TATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                             TGGGGCAGTTACGCCGGTCTGTTATTCGTATGGCCTGGCACGCGGGGGACTTACCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACATATGATGGCCGGGGAGGCGCCCAGTGGTCAGCAACGTTTTGAACCGCTGAACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                      <u>ج</u>
                                                                                                                                                               Length 2805;
                                                                                                                                                             Score 305.4; DB 1; Length
Pred. No. 1.5e-79;
0; Mismatches 301; Indels
                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13840 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1464 AGTGGCCTGGAAGGAGCCTGGTC 1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTGGTCTGGAAGTAGTCTGGAC 1101
                                                                                                                                                             tch 20.5%;
al Similarity 62.1%;
499; Conservative
                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AE000468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1404
                                                                                                                                                                                                                                       684
                                                                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                                                                                                                             422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            962
                                                                                                                                                                 Query Match
                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 24
AE000468
LOCUS
                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
```

```
repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein_bind
                                                                                                                                                                                                                                                                                                                                           protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                           protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein_bind
                                                                                                                                                                                                                                                                      protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             499;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      promoter
                                                                                                                                                                                                     promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /traislation="MONTAQAGAKGRQLHKFGGSSIADVKCYLRVAGIMAEYSQPDDM
MVVSAAGSTTNQLINWLKLSQTDRLSAHQVQQTLRRYQCDLISGLLPAEEADSLISRF
VSDLERLAALLDSGINDAYARAVVGHEEWASARLMSAVLNQGGLPAALDAREFLRAE
RAAQCYDEGLSYPLLQQLLVQPGKRLVYTGFISRNNAGETVLLGENGSDYSATQUG
ALAGVSRYTTWSDAGAYSADPRYKNDACLLPLIRLDEASELARLAAPVLHARTLQPV
SGSEDIDLLKRACYSPDQGSTRIERVLASGTGARTYTGSHDVCJLEFQYPASQDFKLAH
KEIDQILKRACVPRLAVGYNDRQLLGYSEVADSALKILDEAGLPGEILRRQGLA
LVAMVGAGYTRRPLHGREWQQLKGQPYEFTWQSDDGISLVANLRGFTENGGLA
SVFRAEKRIGLVLFGKGNIGSRWLELFAREQSTLSARTGFEFVLAGVVDSRRSLLSYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSYRLEDSLAKRGCYRVLFVDQGDEGALRAALAEKPKLVLVESPSWPLIKVDTAKTC
HLAREYGAVSVVDNTFLSPALONPLALGADLVLHSCTKYLNGHSDVVAGVVTAKDPDV
VTELAWWANNIGVTGGAFDSYLLLRGIRTLVPRMELAQRNAQAIVKTLQTQPLVKKLY
HPSLPRNQGHETAARQOKGFGAMLSFELDGDEQTLRRFLGGLSLFTLAESLGGVESLI
SHAATWTHAGNAPEARAAGISETLLRISTGIEDGEDLIADLENGFRAANKG"
1386. 3818
/gene="metl"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation-"mtrkoatiavrsglnddeoygcvvppihlsstynetgfneprah
Dysrrgnptrdvvoralaeleggagavltntgmsaihlvttvflkpgdllvaphdcyg
                                                                                         at
                 at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /function="enzyme; Amino acid biosynthesis: Methionine"
/note="0810; 100 pct identical to AK2H_ECOLI SW:
P00562;bifunctional enzyme; CG Site.No. 506"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="aspartokinase II and homoserine dehydrogenase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /function="enzyme; Amino acid biosynthesis: Methionine"
Anote="0386; CG Site No. 515"
/codon_start=1
         /note="factor Sigma70; promoter metjp2; documented +1 4126109"
                                                                                      7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /mote="central position to predicted promoter: -132"
/hound_molety="MetJ predicted site"
complement(169. 178)
/hote="central position to predicted promoter: -147"
/hote="central position to predicted promoter: -147"
/hound_molety="MetJ predicted site"
/hote="central position to predicted promoter: -163"
/hound_molety="MetJ predicted site"
                                                                                                                                                      /note="central position to metB promoter: -58"
/hound_molety="MetJ documented site"
complement(138. .147)
/note="central position to predicted promoter: -116"
/bound_molety="MetJ predicted site"
                                                                                                                                                                                                                                                                                                                                                                                                                        150. .178
/note="factor Sigma70; promoter metB; documented +1
                                                 complement(115. .144)
/note="factor Sigma70; promoter metJp1; documented
4126138"
                                                                                                                                                                                                                                                                                                                          /bound_moiety="MetJ documented site"
148. 157
1048- 157
| Dound_moiety="MetJ documented site"
| Dound_moiety="MetJ documented site"
                                                                                                                                                                                                                                                                                                 note="central position to metB promoter: -42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="cystathionine gamma-synthase"
/protein_id="AAC76921.1"
/db_xref="GI:1790375"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein_id="AAC76922.1"
/db_xref="GI:1790376"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(154. .163)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /EC_number="2.7.2.4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="b3940"
1386. 3818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'note="b3939"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1386. .3818
/gene="metL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     223. .1383
/gene="metB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        223. .1383
/gene="metB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  at4126216"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein_bind
                                                                                                                                                                                                                                                                           protein_bind
                                                                                                                                                                                                                                                                                                                                                  protein_bind
                                                                                                                                        protein_bind
                                                                                                                                                                                                          protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                        promoter
promoter
                                                                     promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
```

```
5721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLDASRALAFFNDEAVEQDEESLFLWMRAHPYDDLVVLDVTASQQLADQYLDFASHGF
HVISANKLAGASDSNKYRQIHDAFEKTGRHWLYNAYVGAGLPINHTYNDLIDSGDTIL
SIGIFEGELTGALFLQDFQSVPFTELLVDAWQQGLTFPDPRDDLSGKDVMRKLVILAR
EAGYNIEPDQYRVELVARGESGYPHTELFRGDELMEQWYQKLEARREMGIVLRYVA
RFDANGKARVGVEAVREDHPLASLLPCDNVFAIESRWYRDNPLVIRGPGAGRDVTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation-**MSFFHASQRDALNQSLAEVQGQINVSFEFFPPRTSEMEQTLWNS
IDRLSSLKFKFVSVTYGANSGERDRTHSIIKGIKDRTGLEAAPHLTCIDATPDELKTI
IDRLSSLKFKFVSVTYGANSGERDRTHSIIKGIKDRTGLEAAPHLTCIDATPDELKTI
ARDYWNNGIRHIVALRGDLPPGSGKPEMYASDLYTLKEVADFDISVAPEVHPEAK
SAQADLLNLKRKVDAGANRAITQFFFDVESYLRFRDRCVSAGIDVEIIFGILEVSNFK
QAKKERADNTNRIPRANAQMFOGLDDDAETRKLVGANIAMDMVKILSREGVKDFHFYT
LNRAEMSYAICHTLGVRPGL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  684 TCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAG 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /function="enzyme; Central intermediary metabolism: Pool,
                                                                                                                                                           3898 ...3931
/note="REP (repetitive extragenic palindromic) element;
contains 1 REP sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               804 TATEGICALTATEGICCITICITIATICGIAIGECITEGCACEGIGCCEGAACATACAEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5662 TGGGGCAGTTACGCCGGTCTTTTATTCGTATGGCCTGGCACGGCGCGGGGACTTACCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5542 TCTAACCCACTGGGTGAGGACTTTGACTACCGCAAAGAATTCAGCAAATTAGATTACTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          744 GCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGAT
                                                                                                                                                                                                                                                                           / Loud moiety="MetJ documented site"

/ hound_molety="MetJ documented site"

4098. 4107

/ hote="central position to metF promoter:6"

/ hound_moiety="MetJ documented site"

4098. 4107

/ note="central position to predicted promoter:6"

/ hound_moiety="MetJ predicted site"

4114. 4123

/ note="central position to metF promoter:6"

/ bound_moiety="MetJ documented site"

/ hound_moiety="MetJ documented site"

/ hore="metF"

/ nore="metF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ŧ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="5,10-methylenetetrahydrofolate reductase"
/protein_1d="AAC76923.1"
/db_xref="G1:1790377"
                                                                                                                                                                                                                                                                promoter metF; documented +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               multipurpose conversions"
/note="0296; 100 pct identical amino acid sequence
equal length to METF_ECOLI SW: P00394; CG Site No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  documented
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 305.4; DB 1; Length 13840;
Pred. No. 2.3e-79;
0; Mismatches 301; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="central position to katG promoter: -39"
/bound_aclety="OxyR documented site"
/bound_aclety="CoxyR documented site"
/note="factor Sigma70; promoter katG; document
                                                                                                                                                                                                                                     4058. .4086
/note="factor Sigma70; p
at130126"
4084. .4093
/note="central position
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /EC_number="1.7.99.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5317. .5330
/note="central
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="b3941"
4167. .5057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                IQSDINRLAQLL"
3898. .3931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20.5%;
62.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4167. .5057
/gene="metF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5386. .7566
/gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        at4131392"
5386. .756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
```

g

g S

9 9 9 9 9

ð

DEFINITION ACCESSION VERSION KEYWORDS

ORGANISM

REFERENCE

RESULT 25 ECOUW87

셤

ö

90 A0 A0

ò

gene CDS

```
95983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95984 AACICCGGCTTCCGIACCITCGGTTTTGGTGCCGGTCGTGAAGACGTCTGGGAACCGGAI 96043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95684 GGCCTGAAAAAAGATCTGAAAGCCCTGTTGACAGAATCTCAACCGTGGTGGCCAGCCGAC 95743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         95863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1163
                                                                                                                                                                                                                                                                                                                                                                                                           /traislation-"MDIQSFAVLSGNIYMIRKSATGVIVALAVIWGGGTWYTGTQIQP
GVERFIKDENDAKKGEHAYDWILSYQNFDKGFFNSRFQMQWIFDNGAPDLNIKPGQK
VPVDVDVEHGPLPITMLAHGNVIPALAAKVNLVNNELTQPLFIAAKNKSPVEATLRF
AFGGSFSTILDVAPAEYGKFGFGEGGFTFNGDGSSLSNLDIEGKVEDIVLQLEPWNKY
TAKSFTIDSLARLEEKKFPVGESESKFNQINIINHGEDVAQIDAFVAKTRLDRVKDKD
               FSFFCPHCYQFEEVLHISDNVKKKLPEGVKMTKYHVNFWGGDLGKDLTQAWAVAMALG
VEDKVTVPLFEGVQKTQTIRSASDIRDVFINAGIKGEEXDAAMNSFVVKSLVAQQEKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    863
translation="MKKIWLALAGLVLAFSASAAQYEDGKQYTTLEKPVAGAPQVLEF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96104 GCGAAAGCACCGCTGGGTGCAACCGAGATGGGTCTGATTTACGTTAACCCGGAAGGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95924 TATGGTCAGAAAATCTCCTGGGCCGACCTGTTTATCCTCGCGGGTAACGTGGCGCTAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1044 TCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACGGGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96044 CTGGATGTTAACTGGGGTGATGAAAAGCCTGGCTGACTCACCGTCATCCGGAAGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATGGTCATTATGGTCCTTTCTTTTCGTATGGCTTGGCACGGTGCCGGAACATACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCACCAACGTTTTGAACCGCTGAACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAA
                                                                                                                                        /note="in X63186, 'a' in M77746, 'g' in this sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   684 TCAAATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGAT
                                                      AADVQLRGVPAMFVNGKYQLNPQGMDTSNMDVFVQQYADTVKYLSEKK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 305.4; DB 1; Length 96484;
Pred. No. 3.7e-79;
0; Mismatches 301; Indels 3;
                                                                                                                                                                                                       'tcacgggc' in this sequence"
                                                                                                                                                            /replace="ata"
5718. 5725
/note="in X63186, 'tcacgggc' in this sequence'
/replace="ccacgg"
5729. 5756
/note="promoter matrix score of 58; putative"
                                                                                                                                                                                                                                                                                      5797. .7269
/standard_name="ORF_0490"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                    /protein_id="AAB02996.1"
/db_xref="G1:304967"
                                                                              5703. .5731
/note="putative"
5714
                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20.5%;
llarity 62.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                     misc_difference
                                                                                                                                                                                    misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                499;
                                                                                  terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                   promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                         /translation="MNLMTTTGVVLAGGKARRMGGVDKGLLELNGKPLWQHVADALMTQHVANANRHQETYQASGLKVTEDSLADYPGPLAGMLSYMQQEAGEWFLECPCDTPYIPPDLAARLNHQRRDAPVVWVHDCEBTALVNRAIEPLLLEYLQAGERRVMVFCOMPLEMADGHAVDFSDHKGAFVNVNTPEELARWQEKR"

complement(3642. 3668)
//note="558" match to consensus; resembles
flhc/flhb-regulated promoter; putative"
3653. 3680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
/protein_id="aAB02993.1"
/db_xref="G1:M4964"
/translation="MKCKRLNEVIELLQPAWQKEPDLNLLQFLQKLAKESGFDGELAD
LIDDILIYHLKMRDSAKDAVIPGLQKDYEEDFKTALLRARGVIKE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /traislation-"MNNSAFTEQTLHPDTIMDALFEHGIRVDSGLTPLNSYENRVYOF
QDEDRRRFVVKFYRERWTADQILEBHQFALQINNESPVAARVARVOGTLLHHQGFY
APYPSVGGRQFEADNIDQMEAVGRYLGRHQFGRKQLFIHRPTIGLNEYLIEPRLF
EDATLIPSGLKAAFLKATDELIAAVTAHWREDFTVLALHGDCHAGNILWRDGPHFVDL
DDARNGPAVQDLMMLLNGDKAEQRMQLETIIEAYEEFSEFDTAEIGLIEPLRAMRLVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YLAWLMRRWADPAFPKNFPWLTGEDYWLRQTATFIEQAKVLQEPPLQLTPMY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126. .6322
fnote="corresponds to X63186; ECOPPFA(1. .2192)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note-"absent in X63186; 'c' in this sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .675)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             c' in this sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /function="disulphide bond formation in vivo"
                                                                                                                                                                                                                                                                                                                                                                        /note="promoter matrix score of 48; putative" complement(3691. 3720)
/note="promoter matrix score of 66; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note-"promoter matrix score of 69; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="in X63186; absent in this sequence"/replace="c" 4883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'note="in X63186; absent in this sequence"
                                                                                /function="biosynthesis of molybdopterin"
/note="CG Site No. 921"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /replace="a"
5044. .5718
/note="corresponds to M77746; ECODSF(1.
5059. .5685
/gene="dsbA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3743. .3898
/note="predicted bend of 84.96 degrees"
3848. .3875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="in x63186; 't' in this sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1056. .5042
/standard_name="ORF_0328"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="absent in X63186;
/replace="
misc_difference 4792^4793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="AAB02994.1"
/db_xref="GI:304965"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AAB02995.1"
/db_xref="GI:304966"
                                                                                                                                             /transl_table=11
/protein_id="AAB02992.1"
/db_xref="G1:304963"
                                                                                                                                                                                                                                                                                                                                                                                                                                                         /standard_name-"ORF_089"
                                         complement(3055. .3639)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
                                                                                                                              /codon_start=1
/transl_table=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /replace="a"
4865^4866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               059. .5685
gene="dsbA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /replace=""
misc_difference 4481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 promoter
                                                                                                                                                                                                                                                                                            promoter
                                                                                                                                                                                                                                                                                                                                                         promoter
                                                                                                                                                                                                                                                                                                                                                                                                  promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
```

ð a 셤 ö 셤

ò

```
/product="putative regulator"
//product=1d="Bab88147.1"
//db_xref="c1:13164200"
//translation="MIPFNAPPVVGTELDYMQSAMGSGKLGGDGGFTRRCOQWLEORE
GSAKVLLIPESCTASLEMAALLLLIDOGGODVINEYSTFVSTAMAFVLEMARTIVENDYRP
GSAKVLLIPESCATSLEMAALLLLIDOGGODVINEYSTFVSTAMAFVLEMARTIVENDYRP
GYANTULIPETLIEAAITWTYVYYYYAGGEGGATLINDKALIERAEITREKGTNESGVWST
YKGRALGTIGHIGCFSFHETKNYTAGGEGGATLINDKALIERAEITREKGTNRSGFFR
GOVDKTYWANDIGSSYLMASDLOAAXIMADLEAADRINGYRALAMONYYDALAPLAKAGR
IELPST PDGGLQNAHWYTKLRDIGDRSALINFLKEREIMAVFHYIPLHGCPAGGERFG
EFHGEDRYTTKESERLLRLPLFYNLSPVNQRTVIATLLNYFS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MQAKIAASNTGELDALQQLGFSLVEGEVDLALPVNNASDSGAVV
AQETDIPALRQLASAAFAQSRFRAPWYAPDASSRFYAQWIENAVRGTFDHQCLILRAA
SGDIRGYVSLRELNATDARIGLLAGRGAGELMQTALNWAYARGKTTLRVATQMGNTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LAYYVSYRLGGYEGALLGLALIPALVVIPAAVMLIKRGAIPLSYLKPSWDNGLAGQLS
STELMYLISTYLLPYAXIMKRLLAAQXSWDEVGYGWGVSSSSDAYLGPTAGSSYL
LPTLSRLFRRDITREVKSLKYLPAVAASSTYWLLRDFALWLLISNKFTAARDLF
AWQLVGDVLKVGAYVFGYLVIAKASLRFYILAEVSQFTLLMVPAHWLIPTHGALGAAO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QLITVLGVLAGAGIFNGVTKYVAQYHDNPQQLRRVVGTSSAMVLGFSTLMALVFVLAA
APISLGLFGNHDYQGLVRLVALVQMGIAWGNLLLALMKGFRDAAGNALSLIVGSLIGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MSLAKASLWTAASTLVKIGAGLLVGKLLAVSFGPAGLGLAANFR
                                                                                                                                                                                                                                                             103. 648
//gene="EC64723"
//gene="EC64723"
//note="sc64723"
//note="sc64723"
//codon_scfart=1
//codon_scfart=1
//ev1dence=not_experimental
//transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="similar to WECE_ECOLI gi|2367285 percent identity 99 in 376 aa (Conserved in E.coli K-12)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="similar to WZXE_ECOLI gi|1790227 percent identity 98 in 416 aa (Conserved in E.coli K-12)" /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="N-terminal part (1-62 in 359 aa) is similar to
XIFM_1_ECOLI gi|2367286 percent identity 96 in 62 aa,
C-terminal part (156-359 in 359 aa) is similar to
Yeodon_start=1

    .318703
/organism="Escherichia coli 0157:H7"
/strain="0157:H7"

                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product-"hypothetical protein"
/protein_id="BAB38146.1"
/db_xref="G1:13364199"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="putative cytochrome"
/protein_id="BAB38148.1"
/db_xref="GI:13364201"
                                                                                                                                                   /sub_strain="RIMD 0509952"
/db_xref="taxon:83334"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /evidence=not_experimental/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /evidence-not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AYMATYIVYFSLCCGVFLLWRRRA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALKRYIQSGANVESTAYWLYR"
653. .1783
/gené="ECs4724"
653. .1783
                                                  Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 / 00. .3035
/gene="ECs4725"
1785. .3035
                                                                                                                                                                                          103. .648
/gene="ECs4723"
103. .648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1785. .3035
/gene="ECs4725"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="ECs4724"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3032. .4111
/qene="ECs4726"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3032. .4111
/gene="ECs4726"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
Fax:81-6-6879-2047)
                      genome project
                                                                             source
                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                               FEATURES
                      COMMENT
                                               1403
                                                                                                                          1463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sasakawa,C. and Shinagawa,H.
Complete nucleotide sequence of the prophage VT2-Sakai carrying the verotoxin 2 genes of the enterohemorrhagic Escherichia coli O157:H7 Genes Genet. Syst. 74 (5), 227-239 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Complete nucleotide sequence of the prophage VTI-Sakai carrying the Shiga toxin I genes of the enterchemorrhagic Escherichia coli 0157:R7 strain derived from the Sakai outbreak Gene 258 (1-2), 127-139 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (26-JUN-2000) Ken Kurokawa, Osaka University, Genome Information Research Center; 3-1, Yamadaoka, Suita, Osaka 565-0871, Japan (E-mail:ken@gen-info.osaka-u.ac.jp, Tel:81-6-6879-8365, URL:http://www.gen-info.osaka-u.ac.jp/, Tel:81-6-6879-8365,
                                                                                                                                                                                                                                                                                                                                                                                                                         BCT 07-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 (sites)
Ohnishi,M., Murata,T., Nakayama,K., Kuhara,S., Hattori,M.,
Kurokawa,K., Yasunaga,T., Yokoyama,K., Makino,K., Shinagawa,H. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (strain:0157:H7, sub_strain:RIMD 0509952)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3 (sites)
Yokoyama,K., Makino,K., Kubota,Y., Watanabe,M., Kimura,S.,
Yutsudo,C.H., Kurokawa,K., Ishii,K., Hattori,M., Abe,H., Iida,T.,
Yamamoto,K., Hayashi,T., Yasunaga,T., Honda,T., Sasakawa,C. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5 (bases 1 to 318703)
Ohnishi, M., Kurokawa, K., Makino, K., Yasunaga, T., Shinagawa, H. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Comparative analysis of the whole set of rRNA operons between an enterohemorrhagic Escherichia coli 0157:H7 Sakai strain and an escherichia coli K-12 strain MG1655
Syst. Appl. Microbiol. 23 (3), 315-324 (2000)
20557356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (sites)
Makino,K., Yokoyama,K., Kubota,Y., Yutsudo,C.H., Kimura,S.,
Kurokawa,K., Ishii,K., Hattori,M., Tatsuno,I., Abe,H., Iida,T.,
Yamamoto,K., Ohiishi,M., Hayashi,T., Yasunaga,T., Honda,T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4 (sites)
Haysshi,T., Makino,K., Ohnishi,M., Kurokawa,K., Ishii,K.,
Yokoyama,K., Han,C.-G., Ohtsubo,E., Nakayama,K., Murata,T.,
Tanaka,M., Tobe,T., Iida,T., Takami,H., Honda,T., Sasakawa,C.,
Ogasawara,N., Yasunaga,T., Kuhara,S., Shiba,T., Hattori,M. and
Shinagawa,H.
                   CATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAG
                                                                                                                       1404 GAGCAGGGACTGGGAAGAAAAAAATGTGGTACAGGAAACGGCAAATATACCATCACC
                                                                                                                                                                                                                                                                                                                                                                                                                      AP002567 318703 bp DNA linear BCT 07-MP
Escherichia coli 0157:H7 DNA, complete genome, section 18/20.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7:H7 and genomic comparison with a laboratory strain K-12 Res. 8 (1), 11-22 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Complete genome sequence of enterohemorrhagic Escherichia
                                                                                                                                                                                                                                                                1464 AGTGGCCTGGAAGGAGCCTGGTC 1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Escherichia coli 0157:H7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia coli 0157:H7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AP002567 BA000007
AP002567.1 GI:13364198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0157:H7 and genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20198780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20564182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hayashi
                   1344
                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                 RESULT 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                          AP002567
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
```

ä

```
173154 TCAATCGATGGACGCGGTGGCGCGGTCAGCAACGTTTGCACCGCTGAACTCC 173213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1463
                                                                                                      172974 TCTAACCCGCTGGGTGAGGACTTTGACTACCGCAAAGAATTCAGCAAATTAGATTACTAC 173033
                                                                                                                                                                                                                                                                                                           173274 TATGGTCAGAAAATCTCCTGGGCCGACCTGTTTATCCTCGCGGGTAACGTGGCGCTGGAA 173333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1284 GCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCA 1343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAA 1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1044 TCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGGAC 1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CIGGIAIACIGGGGGCCIGACAACAAGCCICIIGCAGAIAAACCGGGAIAAAAACGGGAAA 1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear · PLN 25-AUG-2001
                                                    743
                                                                                                                                                                                                                                                                                                                                                                                          923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1344 CATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCCAGGGCCTGATGGTGCACCTGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACC
                                                                                                                                                                                                 ACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGC
                                                                                                                                                                 744 GCTCTGAAAAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGAT
                                                                                                                                                                                                                                                                                804 TATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Aspergillus nidulans.
Aspergillus nidulans.
Aspergillus nidulans.
Bukaryota; Fungi, Ascomycota; Pezizomycotina; Eurotiomycetes;
Eurotiales; Trichocomaceae; Emericella.
1 (bases 1 to 3018)
Scherer, M.
Thesis (2001) Department of Microbiology,
                                                    684 TCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAG
Gaps
3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA linear PLN catalase-peroxidase.
  Indels
Mismatches 302;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3018 bp ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            173751 TCTGGTCTGGAAGTGGTCTGGAC 173773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Aspergillus nidulans cpeA gene 1
AJ305225
AJ305225.1 GI:15384982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1464 AGTGGCCTGGAAGGAGCCTGGTC 1486
  ö
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ANI305225
  Matches 498;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1404
                                                                                                                                                                                                                                                                                                                                                                                             864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    173394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 27
ANI305225
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     οŽ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                               g
                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                             à
                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xxef="G1:13364205"
/translation="MADNK PELQRGEARHIELIALGGTIGVGLFWGAASTLKWAGPS
/translation="MADNK PELQRGEARHIELIALGGTIGVGLFWGAASTLKWAGPS
VGISETTAIGNEY OF WASHER PERANOWIPALIAVALVALANIAAVRLYGE BEWFAHIKVTT
ITVMIVIGLGVIFFGFGNGGQSIGFSNLTEHGGFFAGGWKGFLTALCIVVASYQCVEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IGITAGEAKNPQVTLRSAVGKVLWRILLFYVGAIFVIVTIFPWNEIGSNGSPFVLTFA
KIGITAAGIINFVVLTAAALSGCNSGAYSGCGALTAALAKNGDAAAMAVSRHGVPVA
GVAVSIAILLIGSCINTIIPNPQNRVYVYSASVLPGMYPRFVILLSQLRFRRAHKAA
IASHPPRSILEPWANYVTMAFLICVLIGMYFNBDTRMSLFVGIIFMLAVTAIXKVFGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="winnttarptytlegloligwedmyhaldylfadgolkogtluai
naekwijtieenaevrelinaaefryadgisuvrsvrkkypoaqusryagadiweelwa
rackegtypeluggkrpuladyteakiendwinnivgsodgyfredrorlebihasg
aqiytyamgsproeipenedriyhedalymguggtydyftghyrraekimgtiglemu
yrllsopsrikrolilrylemhytghl"
                                                                                                                                                              QFYWHIWGADLYELSGELRYKLFFYPLRELLAGGRYGOTERGEL INTERPOLYER IN THE CONTROL OF TRANSCRIPTION OF THE CONTROL OF THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation-"MSLLQFSGLFVVWLLCTLFIATLTWFEFRRVRFNFNVFFSLLFL
LTFFFGFPLTSVLVFRFDVGVAPPELLLQALLSAGGFYAVYTYTKTKRRRNADPR
REPFTMNVFETNLTWVILMATALVSVGTFFWHNGFLLFRLNSYSOIFSSEVSGVALKF
FFYFFIPAMLVVFFKQDSKAWLFFLVSTVAFGLLTYMVGGTRANIIIAFAFFLFFLF
IIRGWISLWMLAAAGVLGIVGWFWLALKRYGMNVSGDEAFYFFLYLTRDFFSPWENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LLIQNYDNIDFOGLAPIVRDFYVFIPSWLWPCRPSMYLNSANYFTWEVLNNHSCLAIS
PTIIGSLVVWGGALFIPLGAIVVGIIIKWFDWLYELGNRETNRYKAAILHSFCFGAIF
NMIVLAREGLDSFVSRVVFFIVVFGACLMIAKLLYWLFESAGLIHKRTKSSLRTQVFG
                                                                                                                  /translation="mtvlihvigsdiphhnrtvlrffndalaatseharefmvvgkdd
Glsdscpalsvqffpgkkslabaviakakanrqqrffffggfnptlmlallsggikps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="similar to YIFK ECOLI gi|2367290 percent identity 98 in 461 aa (Conserved in E.coli K-12)" /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gi|2367289 percent identity coli K-12)"
                                                                                                                                                                                                                                                                                                                                                                                                                          note="similar to WECF_ECOLI gi|2367288 percent identity
19 in 450 aa (Conserved in E.coli K-12)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product-"putative amino acid/amine transport protein"
/protein_id="BAB38152.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="probable UDP-N-acetyl-D-mannosaminuronic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               303.8; DB 1; Length 318703;
No. 1.5e-78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product_"TDP-Fuc4Nac:lipidII transferase"
/protein_id="BaB38150.1"
/db_xref="GI:l3364203"
                                /product-"hypothetical protein"
/protein_id="BAB38149.1"
/db_xref="GI:13364202"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="similar to WECG_ECOLI
98 in 246 aa (Conserved in E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="BAB38151.1"
/db_xref="GI:13364204"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="ECs4728"
/gene="ECs4728"
/gene="ECs4728"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6394. .7779
/gene="ECs4729"
6394. .7779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6394. .7779
/gene="ECs4729"
                                                                                                                                                                                                                                                                                                                                                                        4108. .5460
/gene="ECs4727"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5463. .6203
/gene="ECs4728"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20.4%;
62.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                           CDS
```

173573

1063

1405

```
linear BCT 21-MAR-2001 contig 3 of 3, section 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <1. .251
//note="0-island #162; Region of the EDL933 chromosome not
homologous to E. coli K-12 MG1655"
complement(253. .861)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Escherichia coli 0157:H7 EDL933.
Escherichia coli 0157:H7 EDL933
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cases 1 to 10667)
Perna, N.T., Plunkett, G. III, Burland, V., Mau, B., Glasner, J.D., Rose, D.J., Mayhew, G.F., Evans, P.S., Gregor, J., Kirkpatrick, H.A., Posfai, G., Hackett, J., Klink, S., Boutin, A., Shao, Y., Miller, L., Grotbeck, E.J., Davis, N.W., Lim, A., Dimalanta, E., Potamousis, K., Apodaca, J., Anantharaman, T.S., Lin, J., Yen, G., Schwartz, D.C., Welch, R.A. and Blattner, F.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Perna, N.T., Plunkett, G. III, Burland, V., Mau, B., Glasner, J. D., Rose, D. J., Mayhew, G. F., Evans, P. S., Gregor, J., Kirkpatrick, H. A., Postal, G., Hackett, J., Klink, S., Boutin, A., Shao, Y., Miller, L., Grotbeck, E. J., Davis, N. W., Lim, A., Dimalanta, E., Potamousis, K., Apodaca, J., Anantharaman, T. S., Lin, J., Yen, G., Schwatz, D. C., Welch, R. A. and Blattner, F. R.
                                                                                                          1004 CGACAACCCGCTTGCGGGCATCACACGTGTTATTACGTTAATCCAGAAGGACCCAA
                                                                                                                                                                                                                                                                         1124 CATGAATGATGAGGAGACTGTTGCCCTGATTGCTGGTGGACACACGTTCGGAAAGACGCA
                                                                                                                                                                                                                                                                                                                                                        1064 CAAGAACCCCGACCCGGTTCTCGCGGCCAAGGATATCCGCATCACCTTTGGTCGAATGGC
                                                                                                                                                                                                                                                                                                                                1346 TGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                 1406 GCAGGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAG
    1112 CTGGGGGCCTGACAACAA-----GCCTCTTGCAGATAACCGGGATAAAACGGGAAACT
                                                                                                                                                                                                                                                 944 CTTCTGGGGAGGCGAGAAGGAATGGTTGGGTAATGATGTCCGCTACTTGAACGGAGAACT
                                                                                                                                                                  TGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genome sequence of enterohaemorrhagic Escherichia coli 0157:H7
Nature 409 (6819), 529-533 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 University of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EDI 633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (22-OCT-2000) Laboratory of Genetics, Ur
Wisconsin, 445 Henry Mall, Madison, WI 53706, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  coli 0157:H7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA
genome,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="enterohemorrhagic"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref-"taxon:155864"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AE005625 10667 bp
Escherichia coli 0157:H7 EDL933
of 290.
AE005625 AE005174
AE005625.1 GI:12518851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1466 IGGCCIGGAAGGAGCCIGGICGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1301 CGGTCTGGAGGTGATCTGGACCA 1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /serotype="0157:H7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="EDL933"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 10667)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .10667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21074935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                  1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 28
AE005625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                 a
                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                      g
                                                                                                                                                                  à
                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                å
                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                   å
                                                                                                                                                                                                                                                                                                                                                                                        /protein_id="CAC59821.1"
/db_xref="G1:15384983"
/translation="MGSNECPYSRQNANIGGGGQNNRDWWPDDLKLNILRQHNSVSNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FDGRGGGGQQQRFAPLNSWPDNVSLDKARRLIMPIKQKYGSKISWADLLILAGNVAL
ESMGFKTFGFAGGRSDTWEADQSVFWGGEKEWLGNDVRYLNGELDNPLAASHMGLIYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HGAGIELQGLGWESGFESGTGRHAITSGLEVIWTKTPTKWSNOFFEYLFKYDWELTKS
PAGAHQYVAKGVEPFIPDPFDPSIKHPPRMLTTDLSLRYDPEYEKISRRFLENPDQFA
DAFARAWFKLTHRDVGPRVLYQGPEVPSEVLIWQDPVPPLDHPVIDNDDIATLKKAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NSGISHTDLFSTAWASASTFRGSDKRGGANGARIRLSPQKNWKVNSQPWLSESLAALE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KIOKOFNDAOSTDKRYSLADLIVLAGAASLEKAARDAGHNVSYSFTPORTDATOEGTD
VDSFNNLEPIADGFRNYGRGTPRVLTEDFLIDKAQLLNLSPPELTVLIGGLRVLNNY
DRSNLGVFTKRPGQLTNDFFVNLLDMGVQWKPADDTNEIFIGSDRKTGQARWKASRAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NPEGPNKNPDPVLAAKDIRITFGRMAMNDEETVALIAGGHTFGKTHGAGPATHLGKEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .052 ATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGGTATA 1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                    LDKGFDYTAAFNSLDYFGLKRDLEALMTDSQDWWPADFGHYGGLFIRMAWHSAGTYRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LVFGSHAELRAISEVYGSSDGEAKFVKDFVAAWEKVSNLDRFDLKQTGLAQRIKPQL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       644 CIAIGGCGCACTCITIAICCCCAIGCCTGCACACACGTACCGCACTTTGA 703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGTCGCGGCGGTGGCGGACAGGGTCAGCTTCGCTCCGCTCACACAGCTGGCCGGA 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              932 TAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACGGCTC 991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTACTATCCAGAAACACTGGATTTAACTCCTGAGATTACACAGCCCTGAATCAAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGGTGGCCGGACGATCTCAACATCCTTCGTCAGCACAACTCGGTCTCTAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGGATAAGGGCTTTGACTATACTGCCGCGTTCAATAGCCTCGACTACTTCGGACTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              752 AAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      812 TTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               872 TGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       992 CAGTATTICCIGGGGAGACCIGAIGGICCIGACIGGIAAIGTIGCCCTIGAAICCATGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGGGGCCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ę,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 3018;
                   2 (bases 1 to 3018)
Scherer,M.
Direct Submission
Submitted (25-JAN-2001) Scherer M., Biochemistry,
Max-Planck Institut fuer Terrestrische Mikrobiologie,
Karl-von Frisch-Str., 35043 Marburg, GERMANY
revised by author 10-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 303.4; DB 8; Length
Pred. No. 6.2e-79;
0; Mismatches 326; Indels
Philipps-Universitaet-Marburg, Marburg, Germany
2 (bases 1 to 3018)
                                                                                                                                                                                                           nidulans
                                                                                                                                                                                                                                                                                                                                                                       /product="catalase-peroxidase"
                                                                                                                                                                               1. 3018
/organism="Aspergillus
/db_xref="taxon:5072"
                                                                                                                                                                                                                                                                                                                              _number="1.11.1.6"
                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       789 g
                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                   393. .2612
/gene="cpeA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20.4%;
ilarity 61.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     883 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              al Similarity
528; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNT
                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                     REFERENCE
                                            AUTHORS
                                                                                                                                          REMARK
                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
```

CDS

```
RAAQPQVDEGLSYPLLQQLLVQHPGKRLVVTGFISRNNAGETVLLGRNGSDYSATQIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                            /function="orf; Unknown function"
/note="Residues 1 to 202 of 202 are 97.52 pct identical to
residues 1 to 202 of 202 from Escherichia coli K-12 Strain
MG1655: B3937"
                                                                                                                                                                                                                                            /codon_start=1
/transl_table=11
/product="orf, hypothetical protein"
/product="orf, hypothetical protein"
/protein_id="ads59138.1"
/db_xref="G1:12518852"
/translation="MXIRLILISLUSVPAFAWQPOTGDIIFQISRSSQSKAIQLATH
SDYSHTGMLVMRNKFRANGFERSVSDDRQYCSEVVWRVYGMAHGEKGKYVVRRVEGGLSVEQQK
LAQTAKRRYGKRYLGRYDRESPSWSDDRQYCSEVVWRVYQNALGMRYGEQQKLKEFPLSNPLV
QAKLKERYGKNIPLEETVVSPQAVFDAPQLTTVAKEWPLFSW"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /function="enzyme; Amino acid biosynthesis: Methionine" //note="Residues 1 to 386 of 386 are 99.48 pct identical to residues 1 to 386 of 386 from Escherichia coli K-12 Strain MG1655: B9399"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             function="enzyme; Amino acid biosynthesis: Methionine" note="Residues 1 to 810 of 810 are 99.87 pct identical to esidues 1 to 810 of 810 from Escherichia coli K-12 Strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /protein_id="AaG59141.1"
/db_xref="G1:12518855"
/translation="MSYTAQAGAKGROLHKFGGSSLADVKCYLRVAGIMAEYSQPDDM
/translation="MSYTAQAGAKGROLHKFGGSSLADVKCYLRVAGIMAEYSQPDDM
MVVSAAGSTTNOL.IRWLKLSGPIDELSAHQVQOTLRRYCCDLISGLIPAEEADSLISAF
VSDLERLAALLDSGINDAVYAEVVGHGEVWSARLMSAVLNQQGLPAAWLDAREFLRAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /function="regulator; Amino acid biosynthesis: Methionine" Anote="Residues 1 to 105 of 105 are 100.00 pct identical to residues 1 to 105 of 105 from Escherichia coll K-12 Strain MG1655: B3938"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MAEWSGEYISPYAEHGKKSEQVKKITVSIPLKVLKILTDERTRR
QVNNLRHATNSELLCEAFLHAFTGQPLPDDADLRKERSDEIPEAAKEIMREMGINPET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MTRKQATIAVRSGLNDDEQYGCVVPPIHLSSTYNFTGFNEPRAH
DYSRRGNPTRDVVQRALAELEGGAGAVLTNTGMSAIHLVTTVFLKPGDLLVAPHDCYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GSYRLFDSLAKRGCYRVLFVDQDBQALRAALAENPKLVLVESPSNPLLRVVDIAKIC
HALBREGGASVVDNTFELSPALQNPLALGADLVLHSCTRKTLNGHSDVVAGYVIARDDDV
VTELAWWANNI GYTGAFDSYLLLIRGLRTLVPRMELAQRNAKAL VYK LOTQYDY
HPSLPENQGHEIAARQOKGFGAMLSFELDGDBQTLRRFLGGLSLFTLAESLGGVESLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="aspartokinase II and homoserine dehydrogenase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SHAATMTHAGMAPEARAAGISETLLRISTGIEDGEDLIADLENGFRAANKG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="repressor of all met genes but metF"
/protein_id="AAG59139.1"
/db_xref="G1:12518853"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="cystathionine gamma-synthase"
/protein_id="AAG59140.1"
/db_xref="G1:12518854"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(921. .1238)/
/gene="metJ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(921, .1238)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Residues 1 to
residues 1 to 810 of
MG1655: B3940"
                                                           complement(253, .861)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /trans__table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="25493"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'note="Z5494"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="Z5495"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="metJ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1515. .2675
/gene="metB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2678. .5110
/gene="metL"
                                                                                        /gene="yiix"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .2675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="metB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2678. .5110
/gene="metL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1515.
```

gene

CDS

gene

CDS

gene

CDS

```
multipurpose conversions of intermed. met'm" hote-"Residues 1 to 296 of 296 are 99.66 pct identical to residues 1 to 296 of 296 from Escherichia coli K-12 Strain MG1655.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /function="enzyme; Protection responses: Detoxification" //functe="Residues 1 to 726 of 726 are 99.86 pct identical to residues 1 to 726 of 726 from Escherichia coli K-12 Strain MG1655: B3942"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /function="orf; Unknown function" /function="norf; Unknown function" // Anote="Residues 1 to 312 of 312 are 98.71 pct identical to residues 1 to 312 of 312 from Escherichia coli K-12 Strain MG1655: B3943"
                                                                                                            LVAMYGAGVTRNPLHCHRFWQQLKGQPVEFTWQSDDGISLVAVLRTGPTESLIQGLHQ
SVFRAEKRIGLVLFCKGNIGSRWLELFAREQSTLSARTGFEFVLAGVVDSRRSLLSYD
GLDASRALAFFNDEAVEQDEESLFLWMRAHPYDDLVVLDVTASQQLADQYLDFASHGF
                                                                                                                                                                                                                     HVISANKLAGASDSNKYŘQIHDAFEKTGRHMLYNATVGAGLPINHTVRĎLIDSGDTIL
STGTIFSGTRODLSKYPTELOPDOAWQGTEPDPRADLSGKYVNKKLYLAR
STAGYNIEDDOVKWSELVPAGCGSTDHFFENGDELNEDWYRKLYRKYVA
RFDANGKARVGVEAVREDHPLASLLPCDNVFALESRWYRDNPLVIRGPGAGRDVYTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
/prduct=5,10-methylenetetrahydrofolate reductase"
/prduct=5,10-methylenetetrahydrofolate reductase"
/prototein_id="An59142.1"
/db_xref="G1:12518856"
/translation="MNFFHASQRDALNQSLAEVQGQINVSFEFFPPRTSEMEQTIANS
IDRISSLRPREVSYTYGANFHASUROFPRINSINGINDATPBELRTI
ARDYNNSIGRRHYANGDLPPGSGRPEMYASDLYTLIKEVADPDISVAAYPEVHPERR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DLFILAGNVALENSGFRFFGFGAGREDVWEPDLDVNWGDEKAWLTHRHPEALAKAPLG
THRGILTYVANPEGPDHSGBPLSAAAALRATFCNWGMDNEETVALIAGGHTGKTHGAG
PTSNVXPDPEAAH ERGGLGARATVGSGYGADAITSGLEVVWTQFTOMSTFENLE
KYEWVQTRSPAGAIQFEAVDAPEIIPDPFDPSKKRRFTWLVTDLTLRFDPEFFEKISRR
ALAGVSRVTIWSDVAGVYSADPRKVKDACLLPLLRLDEASELARLAAPVLHARTLQPV
SGSEIDLQLRCSYTPDQGSTRIERVLASGTGARIVTSHDDVCLIEFQVPTSQDFKLAH
KEIDQILKRAQVRPLAVGVHNDRQLLQFCYTSEVADSALKILDEAGLPGELRLRQGLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SAQADLLALKRKVDAGANRA ITQFFFDVESYLRFRDRCVSAGIDVEI IFGILPYSNFK
QAKKFADMINVRI PAWMAQMFDGLDDDAEITRLVGANIAMDMVKILSREGVKDFHFYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLNDPQAFNEAFARAWFKLTHRDMGPKSRYIGPEVPKEDLIWQDPLPQPIYNPTEQDI
IDLKFAIADSGLSVSELVSVAWASASTFRGGDKRGGANGARLALMPQRDWDVNAAAVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALPVLEKIQKESGKASLADIIVLAGVVGVEKAASAAGLSIHVPFAPGRVDARQDQTDI
EMFELLEPIADGFRNYRARLDVSTTESLLIDKAQQLTLTAPEMTALVGGMRVLGANFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="MSTSDDIHNTTATGKCPFHQGGHDQSAGAGTTTRDWWPNQLRVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LLNQHSNRSNPLGEDFDYRKEFSKLDYYGLKKDLKALLTESQPWWPADWGSYAGLFIR
MAWHGAGTYRSIDGRGGAGRGQQRFAPLNSWPDNVSLDKARRLLWPIKQKYGQKISWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSKNGVFTDRVGVLSNDFFVNLLDMRYEWKATDESKELFEGRDRETGEVKYTASRADL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /function="enzyme; Central intermediary metabolism: Pool,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VFGSNSVLRAVAEVYASSDAHEKFVKDFVAAWVKVMNLDRFDLL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="catalase; hydroperoxidase HPI(I)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
/product="orf, hypothetical protein"
/protein_id="AAG59144.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /protein_id="AAG59143'1"
/db_xref="GI:12518857"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LNRAEMSYAICHTLGVRPGL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8919. .9857
/gene="YijE"
/note="Z5498"
8919. .9857
/gene="YijE"
                                                                                                                                                                                                                                                                                                                                                                         IQSDINRLAQLL"
5459. .6349
/gene="metF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="25497"
6678. .8858
/gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="z5496"
5459. .6349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6678. .8858
/gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5459. .6349 /gene-"metr"
```

i,

role

and

of

```
/product="catalase-peroxidase"
/product="catalase-peroxidase"
/protein_id="AAC45850.1"
/db_xref="catalase-peroxidase"
/db_xref="catalase-peroxidase"
/db_xref="catalase-peroxidase"
/db_xref="catalase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase-peroxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2885 bp DNA linear BCT 11-NOV-1997 crescentus catalase-peroxidase (katG) gene, partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCAAGAGCCTCGACCTGGACGCGGTCGTCAGCGACCTGCACGCCCTGATGACCGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     663 CTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITCAACAGCTGGATATGGAGGCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chases 1 to 2885)
Steinman, H.W., Fareed, F. and Weinstein, L.
Direct Submission
Submitted (26-SEP-1997) Biochemistry, Albert Einstein College
Medicine, 1300 Morris Park Avenue, Bronx, NY 10461-1602, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Proteobacteria; alpha subdivision; Caulobacter
                                                                                                                                                                                                                                                                                            Steinman, H.M., Fareed, F. and Weinstein, L.
Catalase-peroxidase of Caulobacter crescentus: function stationary-phase survival
J. Bacteriol. 179 (21), 6831-6836 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                crescentus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 302.2; DB 1;
Pred. No. 1.4e-78;
0; Mismatches 308;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /strain="cn15"
/db_xref="taxon:155892"
/do4...>22885
/gene="katG"
1404...>22885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. .2885
/organism="Caulobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1404. .>2885
/gene="katG"
/codon_start=1
                                                                                                                                                                                            crescentus.
                                                                                                                                                  GI:2605729
                                                                                                                                                                                                               crescentus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20.3%;
                                                                                                                                                                                                                                                                           (bases 1 to 2885)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                     Caulobacter.
                                                                                           Caulobacter
                                                                                                                             AF027168
AF027168.1
                                                                                                                                                                                        Caulobacter
                                                                                                                                                                                                               Caulobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            al Similarity
513; Conserv
                                                                                                                                                                                                                                                                                                                                                       J. Bacter
98012985
9352936
                                                                 AF027168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                      DEFINITION
                                                                                                                                                                                                               ORGANISM
                           RESULT 29
AF027168
                                                                                                                                                                                                                                                                                            AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                             ACCESSION
                                                                                                                                                  VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                               PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                          MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
/db_xref="G1:12518858"
/translation="MSTGKLHTGSLMSAAGKSNPLAISGLVVLTLIMSYSWIFMKQVT
/translation="MSTGKLHTGSLMSAAGKSNPLAISGLVVLTLIMSYSWIFMKQVT
SYIGAFDFTALKTFGALVLF!VLLRGRGMRPTPFKYTLAIALLQTCGWVGLAGWAL
SYIGAFGKWALLSYTWPFWVVIFAAVFLGERLRRGQFFAILIAAFGLFLVLQPWQLDFS
SMKSAMLAILSGVSWGASAIVAKRLYARHPRVDLLSLTSWQMLYAALVWSVVALLVPQ
REDWQPYFWAMAXSAILATALAMSLWFKKKEAVSVKRI"
complement(9884..10501)
/gene="Yjf"
/note="Z5499"
complement(9884..10501)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGGATGTTAACTGGGGTGATGAAAAAGCCTGGCTGACTCACCGTCATCCGGAAGGGGTG 7313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGAAACCACCGCTGGGTGCAACCGAGATGGTTTACGTTAACCCGGAAGGCCCG 7373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTATGAACGACGAGGAGAAAAACCGTGGCGCTGATTGCGGGTGGTCGTTATGAACGTGGGGTAAAAACC 7493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCCTTGAA 1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGGAC 1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACGGGAAA 1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAG 1403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACGGTGCTG---GTCCGACATCAAATGTAGKTCCTGATCCAGAAGCTGCGCCGATTGAA 7550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGCAGGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACC 1463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    923
                                                                                                                                                                                                                                                                                                                                                   TCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAG 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    863
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1194 AACTCCGGCTTCCGTACCTTCGGTTTTGGTGCCGGCGCGTCGAACGGGAACCGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTAACCCGCTGGGTGAGGACTTTGACTACCGCAAAGAATTTCAGCAAATTAGATTACTAC
                                                                                                                                                                                                                                                                                                                                                                                                                             | GCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGC
                                                                                                                                                                                                                                                                                                               ä,
                                                                                                                                                                                                                                                                  Length 10667;
                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                  Score 303; DB 1;
Pred. No. 1.1e-78;
2; Mismatches 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7611 TCTGGTCTGGAAGTGGTCTGGAC 7633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTGGCCTGGAAGGAGCCTGGTC 1486
                                                                                                                                                                                                                                                                  20.3%;
illarity 61.8%;
Conservative
                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                               496;
                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               984
                                                                                                                                                gene
                                                                                                                                                                                                           SCO
                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6 G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9 %
60 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              $ B $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
```

1658

782

ä 722

9

Length 2885; Indels 1718

902

962

842

g õ g ö В ò g ò 셤 à

셤 ŏ

```
/translation-"MDIRGERHFAAVAETLHEGRAAERLGITOPPLSGSIQALEKALG
APLFARTKRHVELTALGRQWLPHVLEALAAVDALPDTARRLRDGQTGYLSLSFVSTAD
YSVLEDLVRXYEARPGSTGJVEATSDVQVPATQAGSRHAGIIIPPRNKSLFAALAY
RYUSEDLVRXYEARPGGSGDLDLAALADVPLVLFPRTVAPAFHDLVTGYVARGQPV
RIVQBAIQWQTIISTVSAGLGMALAPASLRKLARVGVRXVDLVDPPILETGLVWRRDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /traislation="metparrytpmdakvedniagkcpmghgrgpanrdwwpgslrle
glinghaprsnpwgeafdyaeafksldldavvsdlhalmtdsqewwpadfghyggletr
lawhaagtyrttdgrggaggoorfaplinswpdntuldkarrliwptrgkygaklswa
llyvlvgnvalesmgfktefaggradowepeellywgpestymlddkrysgereldspl
gavqwglityrnpegaprenppelasardirefarwamnbeetvallagghterhub
gbaslycyfpeggateaggerwaskhgtgkgpdattggpeviwtgtptrwsnhffdnl
frybwdgspagakowqaknapadIpdafdphyrthyprmitsdlalreblis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SVEKWYNARICADA TYCISNCDKITPOMLMAAMRLNIPVYFYSGGPMEAGKYTVKGKIR
ALDLYDAMYVAADDSYSDEEVEAIEKAACPTGGSCSGMFTANSMNCLTFALGLSLPGN
GSYLATHADREALFKEAGRYVYDLCQRWYEQEDATALPRGIATRAAFENAMSLDIAMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSTNTVLHLLAAAHEGGIDESMADIDRLSRHYPCLSKVAPAKSDVHMEDVHRAGGVMA
ILGELERGGLIDASQPTVHAPTMGEALARWDIGRTNSQIAHEFFKAAPGGKPTQVAFS
QAARWEELDIDRENGVIRSVEHPFSKDGGLAVLFGNLAPEGCIVKTAGVDESILTFRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TARYFESQDAAVSGILGGQVKAGEVVVIRYEGPKGGPGMQEMLYPTYLKSKGLGAAC
ALVTDGRFSGGTSGLSIGHVSPEAGEGGLIALVETGDPILIDIPTRGITLEVSDAVLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OFVPGHVHLKDLGQLVAREIEAAGGVAKEFNTIAVDDGIAMGHGGMLYSLPSRDLIAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'translation = "MPPYRSRTTTHGRNMAGARGLWRATGMKDEDFGKPIIAVANSFT
                      Genomic Research, 9712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'note="identified by match to TIGR protein family HMM
                                                                                                                                                                                                                                                                                                               protein family HMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ARREAQLARGKDAWTPLNRKRDLTPALRAYAAMTTNAARGAVRDVSQIERG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein family HMM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      product="isoleucine biosynthesis transcriptional
                                                                                                                      /organism="Caulobacter crescentus CB15"
/strain="CB15"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="dihydroxy-acid dehydratase"
/protein_id="AAK25006.1"
/db_xref="GI:13424688"
Direct Submission
Submitted (31-37M-2001) The Institute for Ge
Medical Center Dr. Rockville, MD 20850, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                               match to TIGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="identified by match to
                                                                                                                                                                                                                                                                                                                                                                                                                     /product-"catalase/peroxidase"
/protein_id="AAK25005.1"
/db_xref="GI:13424687"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AAK25007.1"
/db_xref="G1:13424689"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(2685. .4538)
/gene="CC3044"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(2685. .4538)
                                                                                                                                                                             /db_xref="taxon:190650"
                                                                                                                                                                                                                                                                                                               /note="identified by
TIGR00198"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="CC3045"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4637. .5527
/gene="CC3045"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5578. .6093
/gene="CC3046"
                                                                                                                                                                                                                                       CC3043"
                                                                                                                                                                                                                                                                                      /gene="CC3043"
                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="CC3044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     activator"
                                                                                                                                                                                                            220, .2433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rIGR00110'
                                                                                                   .10677
                                                                                                                                                                                                                                       /gene="
                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOS
                                                                                                                                                                                                                                                                   CDS
                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              [ (bases 1 to 10677)
Nierman, W.C., Feldblyum, T.V., Laub, M.T., Paulsen, I.T., Nelson, K.E.,
Nierman, W.C., Feldblyum, T.V., Laub, M.T., Paulsen, I.T., Nelson, K.E.,
Basen, J., Heldelberg, J.F., Alley, M.R., Ohta, N., Maddock, J.R.,
Potocka, I., Nelson, W.C., Newton, A., Stephens, C., Phadke, N.D.,
Ely, B., DeBoy, R.T., Dodson, R.J., Durkin, A.S., Gwinn, M.L.,
Shaft, D.H., Kolnongy, J.F., Smit, J., Craven, M.B., Khouri, H.,
Shetty, J., Berry, K., Utterback, T., Tran, K., Wolf, A., Vamathevan, J.,
Ermolaeva, M., White, O., Salzberg, S.L., Venter, J.C., Shapiro, L. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AE005967 10677 bp DNA linear BCT 12-JUN-2002 Caulobacter crescentus CB15 section 293 of 359 of the complete
                                                                                                                                                                                                                                                                                                                                                                         1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2019 AAGCGCTACAGCGGCGAGCGTGAGCTGGACTCGCCCTGGGCGCGGGCCAGATGGGCCTG 2078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1200 ATTIATGICAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCGGCTTCCGCGAAAGAT 1259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1260 ATCAGGGAAGCTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCG 1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1320 GGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCA 1379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nierman, W.C., Feldblyum, T.V., Paulsen, I.T., Nelson, K.E., Elsen, J., Heidelberg, J.F., Alley, M.R.K., Ohta, N., Maddock, J.R., Potocka, I., Nelson, W.C., Newton, A., Stephens, C., Phadke, N.D., Ely, B., Latub, M.T., DeBoy, R.T., Dodson, R.J., Durkin, A.S., Gwinn, M.L., Hatt, D.H., Kolonay, J.F., Smit, J., Craven, M., Khouri, H., Shetty, J., Berry, K., Utterback, T., Tran, K., Wolf, A., Vamathevan, J., Ermolaeva, M., White, O., Salzberg, S.L., Shapiro, L., Venter, J.C. and
     CGCTTCGCCCCCCTGAACAGCTGGCCGGACAACACCAATCTCGACAAGGCCCGCCGCCTG 1838
                                                                                                                                                                1023 ACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGA 1082
                                                                                                                                                                                              Bacteria; Proteobacteria; alpha subdivision; Caulobacter group;
                                                         CTGTGGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTG
                                                                                           GAAGATGACTGGGACTCGGACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGAT
                                                                                                                                                                                                                                                                                                                                                                         AACCGGGATAAAAACG - - - GGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Complete genome sequence of Caulobacter crescentus
Proc. Natl. Acad. Sci. U.S.A. 98 (7), 4136-4141 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1440 GGAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTC 1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2316 GGCAAGGGCCCCGACGACGCCATCACCGGCGGCGCCCGGAAGTGATCTGGAC 2362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Caulobacter crescentus CB15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Caulobacter crescentus CB15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AE005967.1 GI:13424686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 10677)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AE005967 AE005673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Caulobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fraser, C.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fraser, C.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11259647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                genome
                                                                                                                 1839
                                                                                                                                                                                                                                                                        1083
                                                                                                                                                                                                                                                                                                                             1959
                                                                                                                                                                                                                                                                                                                                                                               1143
             1779
                                                            963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 30
AE005967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
```

셤

g ŏ 셤 à 셤

à

594

```
1022
                                                                                                                                                                                                                                                                                                                1142
                                                                                                                                                                                                                                                                                                                                                                                           1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1379
                                                                                                                                                                                                                                  1023 ACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGA 1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1200 ATTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGAT 1259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BCT 19-JAN-1999
                                                                              962
                                                                                                                                                                                                 714
                                                                                                                                                                                                                                                                          774
                                                                                                                                                                                                                                                                                                                                                       834
                                                                                                                                                                                                                                                                                                                                                                                                                                    894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              954
                                                                                                                   654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
Submitted (11-MAR-1998) J. Gagnon, Inst. de Biologie Structurale,
41 Avenue des martyrs, F- 38027 Grenobles, FRANCE
Location/Qualifiers
1. . 2487
/organism="Haloarcula marismortui"
/db_xref="taxon:2238"
                                                                                                                                                                               1260 ATCAGGGAAGCTTTTCACGTATGGCCATGGATGAGGAGACTGTGGCCCTGATCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACGGTGCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCCCAGTGGTGGTCAGCAA
                                                                                                  963 CIGIGGCCAGTCAAGAAAAAAAAAAGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTG
                                                                                                                                                                                                                                                        1143 AACCGGGATAAAAACG---GGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          955 ATTCGCGAGACCTTCGCCCGGATGGCCATGAATGACGAGGAGCCGTCGCCCTGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTG
                                                                                                                                                                                                                                                                                                                GAAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 2487)
Cannac-Caffrey,V., Hudry-Clergeon,G., Petillot,Y., Gagnon,J.,
Zaccai,G. and Franzetti,B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The protein sequence of an archaeal catalase-peroxidase Biochimie 80 (12), 1003-1011 (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1440 GGAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTC 1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Archaea; Euryarchaeota; Halobacteria; Halobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2487 bp DNA line gene encoding catalase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Halobacteriaceae; Haloarcula.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Haloarcula marismortui
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Haloarcula marismortui.
Haloarcula marismortui
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     peroxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Y16851.1 GI:2980654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 2487)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     catalase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99122366
9924978.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HMY16851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gagnon, J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Y16851
                                      535
                                                                                                                                                                                           655
                                                                                                                                                                                                                                                                                                              1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1320
    843
                                                                            903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 31
HMY16851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                    셤
                                                                          ŏ
                                                                                                         g
                                                                                                                                                     ò
                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
    å
                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AEGEDEDPFDDGAGPTVSAMEGELREGYMAILDAIASEFEAFRLODKLVGSRIKGED
LISDADRKATEGLSATIOHLKTLKLUNNNRIEDLYEOLYAINKRLIGLEGRLLRLADSY
LISDADRKATEGLSATIOHLKTLKLUNNNRIEDLYEOLYAINKRLIGLEGRLLRLADSY
DISRGEFLRAYEGSELNPTWSEQVRAMGVRPTKFVENDSQSYTDIRSEIAALATETGY
PIDDYRRYOTVOGREBRAQAKREWYEANLALVISIAKKYTNRGLOPLDLIGENIG
LMKAYDKFEYRRGYRESTYATWWIRAITASIADQATIIRIPVHMIETINKIVRTSRQ
ALLEIGREPPPELAEKLAMPLEKYRKYLKIAKEPISLETPTGDEEDSHLGDPIEDKN
ALLPIDAALOSNLKRTYTRVLASLIPREERVLRMRFGIGMNTDHTLEEVGGOFSYTRR
RIRQIEAKALRRLKKHPSRSRKLRSFLDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
/product="sensor histidine kinase, putative"
/protein_id="AAK25010"1"
/db_xref=101:13424692"
/translation="MSDLERLOPILATALDAVVVMDVEGVVVDWTSRAEVLLGWRREE
VLGRRLSALILDSEAGEGGAEDAALFSSSGRPSLFDVRELMARRQDGGSIAIELSMV
RWSEPDAAPLVLGFVRDISRRSEALKRLVVSEARFRAAIDAVQGVLWTNNASGKMYGE
                                                                                                                               /translation="manlilsyvgsDrpglffralakavlsaggmwleshlsglgglyv
gsvlvaldagsvdalraavaevdagglevriapaleraapaagetvafslvggdrpglv
aqvtavlsglhanietfetrlsvepysgaplfhldarlrlpytlsasavqtaleaisg
                                                                                                                                                                                                                                                                                                                                                                                                       /translation-"msnnssaeteapettggdgplldltdagvkkfikqakargyvym
Delmkylpsersppa.edflamlsbwgvnvybaeedaenaedgevardbentyias
Dkparydpppyrmyllamgsvellsbregtlalakrieagkdynikglcesaltyea
Imvmreelgygrillbevidlegytaalngyaaqpaaeddegpaepyddeagearae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QPGWSALTGQIREEYEGVGWTKVVHPDDVEPTLSAWLAAVAEŘRTFEFEHRVRRHDGV
WRDCLIRAVPLIGDNGEIREWVGVHTDISEQRAAAEKLRESEALFRTLADAAPAPVWM
TEPCGGWEFANAAFAELANVDREALLGYGWLSLLHPDDIAGLLERRQAARAGPDPYTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EARFKRQPDGWRWMLAHAKPRIDATGAFLGYVGMAMDLSEIKNAQAQQKLLINELNHR
WYTILASIQSIRAQTLRADEVSPRARROFIDRLAMASAAHNYLTNERWSGAYIDDILR
EALRPFCDRRDPER TITGFSYVERGAALALAAHELGINAAKSALSTPHGRVTV
AWSLKGENHALVHWSESGGPEVQAPTRRGFGARLLERGIATDLGGRPELLEKPEGVEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ñ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGA 722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          475 CAGGAGTGGTGGCCGGCTGACTTCGGCCACTATGGCGGCCTGTTCATTCGCCTGGTTGG 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           355 CTGAACCAGCCCCGCGCTCCAATCCGATGGCGGAGGCGTTCGACTACGCCGAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        723 TITCAACAGCTGGATATGGAGGCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HWW.
                                                                                                                                                                                                                                                                                          protein family HMM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 10677;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein family
                                                                                                                                                                                                                                                                                                                                                 /product="RNA polymerase sigma factor RpoD"
/protein_id="AAK25009.1"
/db_xref="GI:13424691"
                                                                        /product="conserved hypothetical protein"
/protein_id="AAK25008.1"
/db_xref="GI:13424690"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 302.2; DB 1; Length
Pred. No. 1.9e-78;
0; Mismatches 308; Indels
                'note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                        /note="identified by match to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1791 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note-"identified by match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(8818. .10587)
/gene="CC3048"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(8818. .10587)
                                                                                                                                                                                                         complement(6466. .8424)
/gene="CC3047"
                                                                                                                                                                                                                                                    complement(6466. .8424)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QLPVRVVRADPNDQGPEQVVSPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3601 g
                                                                                                                                                                                                                                                                                                            /codon_start=1
/transl_table=11
                                                        transl_table=11
                                                                                                                                                                                                                                                                  /gene="CC3047"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
'gene="CC3046"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="CC3048"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20.3%;
62.0%;
                                                                                                                                                                                           EIMVDVTVGGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3631 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  al Similarity 62.0
513; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
```

ð a ð 셤 ò g

```
PLAAVQMGLIYVNPEGPNGNPDPMAAAVDĪRETFRRMAMNDVETAALIVGGHTFGKTH
GAGPADLVGPEPEAAPLEQMGLGWKSSYGTGTGKDAĪTSGIEVWFTWPTKNDNSFLE
ILYGYEWELTKSPAGAWQYTAKDGAGAGTIPDPFGGPGRSPTWLATDLSLRVDPIYER
ITRRMLEHPEELADPEKARAYTALIHHMGPVARYLGPLVPKQTLLMQDPVPAVSHDLY
GEAEIASLEKSQIRASGLIVSQLVSTAWAAASSFRGSDKRGGANGGRIRLQPQVGWEVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MPEQHPPITETTTGAASNGCPVVGHMKYPVEGGGNQDWWPNRLN
KVHJQNPPAYDPWGAAEDYZAEVATTUDVALTRDIEEVWTTSOPWWPADYGHVSPLE
IRMAWHAAGTYRIHGGRGGAGGGMQRFAPLNSWPDINSLDKARRLLWPVKRYGKKLS
WADLIVFAGNCALESMGFKTFGFGFGRVDQWEPDEVYWGKEATWLGDERYSGKRDLEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DPDGDLRKVIRTLEETQESFNSAAPGNIKVSFADLVVLGGCAATEKAAKAAGHNITVP
FTPGRTDASQEQTDVESFAVLEPKADGFRNYLGKGNPLPAEYMLLDKANLLTLSAPEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3
TVLVGGLRVLGANYKRLPLGVFTEASESLTNDFFVNLLDMGITWEPSPADDGTYQGKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GSGKVKWTGSRVDLVFGSNSELRALVEVYGADDAQPKFVQDFVAAWDKVMNLDRFDVR
                                                              1404 GAGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACC 1463
                                                                                       BCT 11-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mutation Associated to Isoniazid Resistance in Italian Isolates of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Orefici, G.
                                                                                                                                                                                                                                                                                        2223 bp DNA linear BCT 11-FEB-20 gene, complete cds.
AF314111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (18-OCT-2000) Dip. Biologia Molecolare, Laboratorio di
Microbiologia Molecolare e Biotecnologia, Universita' di Siena,
Viale Bracci, Siena 53100, Italy
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Actinomycetales; Corynebacterineae; Mycobacteriacee; Mycobacterium; Mycobacterium tuberculosis complex. I (bases 1 to 2223)
Orru,G., Iona,E., Memmi,G., Oggioni,M.R., Fattorini,L., and Pozzi,G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mycobacterium tuberculosis
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels

    .2223
/organism="Mycobacterium tuberculosis"
/isolate="F27"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:1773"
/note="isoniazid resistant isolate"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20.0%; Score 298.4; DB 1; 62.4%; Pred. No. 1.8e-77; ive 0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="catalase-peroxidase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   359 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /protein_id="AAK06513.1"
/db_xref="G1:12744162"
                                                                                                                                                                              1076 AGCGGTATCGAAGGGCCGTGGAC 1098
                                                                                                                                                     1464 AGTGGCCTGGAAGGAGCCTGGTC .1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 740 9
                                                                                                                                                                                                                                                                                                                                                                                                                                            Mycobacterium tuberculosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                              AF314111.1 GI:12744161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="katG"
1. 2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="KatG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 2223)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   o 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 20.0
Best Local Similarity 62.4
Matches 502; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . 2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Orru, G.
                    926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                 AF314111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                         셤
                    셤
                                                              ŏ
                                                                                                                                                     ò
                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                      KGPGGAWQWAPKSEELKNSVPDAHDPDEKQTPWALTTDIALKRDPDYREVWETFGENP MEFGMNFAKAWYKLTHRDMGPPERFLGPEVPDEEMIWQDPLPDADYDLIGDEEIAELK EEILDSDLESVSQLVKTAWASASTYRDSDKRGGANGARLKLEPPOKWWENREPEQLETVL GTLILDSDLESVSQLVKTAWASASTYRDSDKRGGANGARLKLEPPOKWWENREPEQLETVL ETLENIQTENDSRSDGTQVSLADLIVGGNAAANAGYDVEIPFEPGRVDAGP EHTDAPSFDALKPRVOGVRNIQDDITRPAEEVLVDNADLLAHTASELTALIGGSWRSI GANYQDTDLGVFTDEPETLINDFFVNILLDMGTEWEPAADSEHRYKGLDRDTGEVKWEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1223
                                                                                                                                                                          /translation-"MAETPNSDMSGATGGRSKRPKSNODWWPSKINLEILDQNARDVG
PVEDDFDYAEEFQKLDLEAVKSDLEELMTSSQDWWPADYGHYGPLFIRMAWHSAGTYR
TADGRGGAAGGRQRFAPINSWPDNANLDKARRLLLPIRQKYGQKISWADLMILAGNVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATG 1283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCA 1343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1344 CATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAG 1403
                                                                                                                                                                                                                                          IESMGFKTFGYAGGREDAFEEDKAVNWGPEDEFETQERFDEPGEIQEGGASVWGLIY
VNPEGPDGNPDPEASAKNIRQTFDRWAMNDKETAALIAGGHTFGKVHGADDPEENLGP
                                                                                                                                                                                                                                                                                    EPEAAPIEQQGLGWQNKNGNSKGGEMITSGIEGPWTQSPTEWDMGYINNLLDYEWEPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               990 TCCAGTATTTCCTGGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     596 CAAAAGATCTCCTGGGCCGACCTGATGATTCTCGCAGGGAACGTCGCCATCGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCGGACCTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       690 CCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             810 CATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 870 GATGGCCGGGGGGCGCCCAGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGATTCAAAACGTTCGGTTACGCCGGCGGCGCGCGAGGACGCCTTCGAGGAAGATAAGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTATACTGGGGGCCTGACAACAAGGCCTCTTGCAGATAACCGG---GATAAAAACGGGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCAACTGGGGGCCGGAAGACGAGTTCGAGACACAGGAGCGGTTCGACGAGCCGGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                       TRIDLIFGSNDRLRAISEVYGSADAEKKLVHDFVDTWSKVMKLDRFDLE"
748 c 795 g 377 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1; Length 2487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 300.6; DB 1;
Pred. No. 4.1e-78;
0; Mismatches 294;
                                                                                  /product="peroxidase/catalase"
                                                                                                       /protein_id="CAA76423.1"
/db_xref="GI:2980655"
/db_xref="SPTREMBL:059651"
                                                                /transl_table=11
                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 20.2%;
Best Local Similarity 62.6%;
Matches 503; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                              267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   968
                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
CDS
```

g

ã g δ g ŏ 엄 ò qq

à

à 셤 g ò a

ò

g

ò 욥 οğ 셤

ò

```
/transl_table=11
/product="catalase-peroxidase"
/product="catalase-peroxidase"
/product="catalase-peroxidase"
/db_xxef="c1:12744170"
/translation="MPEQHPPITETTTGASSNGCPVVGHMKYPVEGGGNODWWPNRLN
//translation="MPEQHPPITETTTGASSNGCPVVGHMKYPVEGGGNODWWPNRLN
/translation="MPEQHPPITETTTGASSNGCPVVGHMKYPVEGGGNODWWPNRLN
/translation="MPEQHPPITETTTGASSNGCPVVGHMKYPVEGGNODWWPNRLN
IRMAWHAAGTYRIHOFRGAGGGMQRPAPLNSWPDNASLDKARRLLMPVKRKKGKKLS
WADLIVFAGNCALESMGFKTFGFGFGRVDQWEPDEVYWGKRATHLGDERYSGKRDLEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GEAETASLKSQIRASGLTVSQLVSTAMAASSFRGSDKRGGANGGRIRLOPQVGWEVN
DPDCDLRKVIRTLEELQESPNSAAFGNIKVSFADLVVLGGCAAIERKAAAGHNITVP
PTPGRTDASCOGTDVESFAVLEPKADGERNJLGKROPLPABVHLLDKANLITLSAPEM
PTVPGGLRVLGANY KR.PLGVFTFASESLTNDFFVNLLLDMGTTWESPADGTYQKD
GSGKVKWTGSRVGLVFGSNSELRALVEVYGADDAQPKFVQDFVAAWDKVMNLDRFDVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLAAVQMGLIYVNPEGPNGNPDPMAAAVDIRETERRAMMNDVETAALIVGGHFEGKTH
GEGPADLVGPEPEAAPLEQMGLGWKSSYGTGTGKDALTSGIEVWWTWPTKWDNSFLE
ILYGYEWELIRSPAGANTAKDGAGATIPDPFGGPGRSPTMLATDLSLRVDPIYER
ITRRALEHPEELAABERAKAWTKLIHRDMGPVARYLGPLYPRGTLLMQDPVPAYSHDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG 1107
   Mutation Associated to Isoniazid Resistance in Italian Isolates of Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    466
                                                                                             ď
                                                                      Direct Submission
Submitted (18-OCT-2000) Dip. Biologia Molecolare, Laboratorio di
Microbiologia Molecolare e Biotecnologia, Universita' di Siena,
Viale Bracci, Siena 53100, Italy
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCACTACGGGCCGCTGTTTATCCGGATGGCGTGGCACGCTGCCGGCACCTACGCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGATGCCCGGGGAGCCCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCAAGAAGCTCTCATGGGCGGACCTGATTGTTTCGCCGGCAACTGCGCGCTGGAATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    688 ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               748 TGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               =
=
=
=
=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                     1. .2223 /
/organism="Mycobacterium tuberculosis"
/isolate="F16" /
/db_xref="taxon:1773" /
/note="isoniazid resistant isolate"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 298.4; DB 1;
Pred. No. 1.8e-77;
0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         742 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20.0%;
nilarity 62.4%;
Conservative 0
                                                                                                                                                                                                                                                 /gene="katG"
                                                                                                                                                                                                                                                              1. .2223
/gene="katG"
                                                                                                                                                                                                                                                                                           /note="Katg"
                                                (bases 1 to 2223)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           O
                                                                                                                                                                                                                               1. .2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
Matches 502; Conserv
                                 Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           427
                                                             Orru, G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                    gene
                                 JOURNAL
                                                                                           JOURNAL
                                                                                                                                                                                                                                                               CDS
                                                                                                                                        FEATURES
   TITLE
                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCATGGATGATGAGGAGACTGTGGCCTGATCGCGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                         GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                      TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                     586
                                                                                                                                                                                                                                                                                                                                                                                                                                  TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCAGGGACTGGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCT 11-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               206
                                                                                                                                                                                                                                                              CGACAACGCCAGCTTGAACAGCGCCCGGCTGCTGGCGGCCGGTCAAGAAGAAGTACG 466
                                                                                                                                                                                                                                                                                                                                        GCAAGAAGCTCTCATGGGCGGACCTGATTGTTTCGCCGGCAACTGCGCGCTGGAATCGA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                    807
                                                                                                                        867
                                                                                                                                                                                    927
                                                                                                                                                                                                                 406
                                                                                                                                                                                                                                               987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               827 Argececce --- GCCCGGCCGATCTGGTCGGCCCCGAACCCGAGGCTGCTCCGCTGGAGC 883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Orru, G., Iona, E., Memmi, G., Oggioni, M.R., Fattorini, L., Orefici, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AF314115 2223 bp DNA linear BCT 11-FEB-20
Mycobacterium tuberculosis isolate F16 catalase-peroxidase (katG)
                                                             TGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                             CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                        GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGGTGGATATGGAGGCTC
                                                                                                                       GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Firmicutes; Actinobacteria; Actinobacteridae; Actinomycetales; Corynebacterineae; Mycobacterium; Mycobacterium tuberculosis complex.

1 (bases 1 to 2223)
                                                                                                                                                                                                                                                                                                                           = = =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mycobacterium tuberculosis. Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AF314115.1 GI:12744169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene, complete cds.
AF314115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AF314115
                                                                                                                                                                                                                                                                                                                                                                     1048
                                                                                                                                                                                                                                                                                                                                                                                                                                    1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1465
688
                              167
                                                           748
                                                                                        227
                                                                                                                       808
                                                                                                                                                    287
                                                                                                                                                                                                                                                                           407
                                                                                                                                                                                                                                                                                                         988
                                                                                                                                                                                                                                                                                                                                        467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 33
AF314115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                        õ
                                                                                   셤
                                                                                                                       ð
                                                                                                                                             셤
                                                                                                                                                                             à
                                                                                                                                                                                                            용
                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                      용
                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                         셤
```

ä

747

807

셤 à 셤 õ 셤 à 셤 ò 셤 à 셤 ò a ö 셤

```
988 GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mycobacterium tuberculosis isolate AnO5 catalase-peroxidase (katG) aF314120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1405 AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1165 TICAGAAACCICTIGCCGCCAGGAGGGACTIATITAIGICAAATCCIGAAGGCCCCG 1224
                                                                                                                                       ACCCGATGGGTGCGGCGTTCGACTATGCCGGGAGGTCGCGAACCATCGACGTTGACGCCC 226
                                                                                                                                                                                         GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT 867
                                                                                                                                                                                                                                                  TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                               1108 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        647 IGGAGAACCCGCTGGCCGCGGTGCAGATGGGGCTGATCTACGTGAACCCGGAGGGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCATGAACGACGTCGAAACAGCGGCGCTCGATCGTCGGCGGTCACACTTTCGGTAAGACCC
                                                                                                                                                                                                                                                                                            ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1285 CCAIGGAIGAIGAGGAGACTGIGGCCCIGAICGCGGGGGGCCAIACAITIGGIAAAGCAC
                                                                                                            688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                    Gaps
                                                                                ;9
                                                     2223;
                                                     Length
                                                                                 Indels
                                                   1;
                                                                              0; Mismatches 296;
                                                   Score 298.4; DB Pred. No. 1.8e-77
       359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 967
         Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGCATCGAGGTCGTATGGACGA
       741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:12744179
                                                tch 20.0%;
al Similarity 62.4%;
502; Conservative
      694 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AF314120.1
       ø
      429
                                                                                                                                                                                                                                                                                                                        347
                                                                                                                                                                      748
                                                                                                                                                                                                    227
                                                                                                                                                                                                                                                              287
                                                  Query Match
                                                                                                                                        167
                                                                                                                                                                                                                                  808
                                                                                                                                                                                                                                                                                          868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                944
                                                                  Best Local
    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 35
AF314120
                                                                                                              á
                                                                                                                                       셤
                                                                                                                                                                      ŏ
                                                                                                                                                                                               셤
                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                 윱
                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                            TATACTGGGGCCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                        TICAGAAACCICTIGCCGCCACGCAGATGGGACTTATTATGTCAATCCTGAAGGCCCCG 1224
                                                                                                                                                     1284
                                                                                                                                                                                                             ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                  AGCAGGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCT 11-FEB-2001
                                                              646
                                                                                                                                                                                   991
                                                                                                                                                                                                                                              826
                                                                                                                                                                                                                                                                                                                                                   TGGGCTTCAAGACGTTCGGGTTCGGCTTCGGCCGGGTCGACCAGTGGGAGCCCCGATGAGG 586
                                                                                                                                                                                                                                                                                                  Argecece--- eccesecearcresresececesaaccesaecresresereses 883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mycobacterium tuberculosis.

Mycobacterium tuberculosis
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
Bacteria; Firmicutes; Actinobacteriaceae;
Actinomycetales; Corynebacterineae; Mycobacteriaceae;
Mycobacterium; Mycobacterium tuberculosis complex.

I bases I to 2223)
Orru, G., Iona, E., Memmi, G., Oggioni, M.R., Fattorini, L., Orefici, G. and Pozzi, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mutation Associated to Isoniazid Resistance in Italian Isolates of Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (18-OCT-2000) Dip. Biologia Molecolare, Laboratorio di
Microbiologia Molecolare e Biotecnologia, Universita' di Siena,
Viale Bracci, Siena 53100, Italy
Location/Qualifiers
                                                                                                          TCTATTGGGGCAAGGAAGCCACCTGGCTCGCGCGATCAGGGGTACAGCGGTAAGGGGATC
                                                                                                                                                  GIGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                     /transl_table=11
/product="truncated catalase-peroxidase"
/protein_id="aAK06519.1"
/db_xref="GI:L2744174"
/translation="MPEQHPPITETTTGAASNGCPVVGHMK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   truncated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Mycobacterium tuberculosis"
/isolate="F15"
/db_xref="taxon:1773"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mycobacterium tuberculosis isolate F15 truncat
catalase-peroxidase (katG) gene, complete cds.
AF314117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="isoniazid resistant isolate"
                                                                                                                                                                                                                                                                                                                                                                                              GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                             AF314117.1 GI:12744173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .84
/gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="KatG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 2223)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Orru, G
                                                                                        1165
                                                                                                                                                                                                            1285
                                                                                                                                                                                                                                                                      1345
                                                                                                                                                                                                                                                                                                                                1405
                                                                                                                                                                                                                                                                                                                                                                                            1465
                                                          587
                                                                                                                                                                                                                                          167
                                                                                                                                                                                                                                                                                                                                                             884
                                                                                                                                                                                                                                                                                                    827
                                                                                                                                                                                                                                                                                                                                                                                                                       944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 34
AF314117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /ERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
```

1107

526

406 987 466

927

1164

646

1284

206

1344

826

```
1164
                                                                                                                                                                                                                                                                              1284
                                                                    1107
                                                                                                                                                                                                         1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AF314121 2223 bp DNA linear BCT 11-FEB-2001
Mycobacterium tuberculosis isolate Rm09 catalase-peroxidase (katG)
 586
                                                                                                                                                                         646
                                                                                                                                                                                                                                              706
                                                                                                                                                                                                                                                                                                              99/
                                                                                                                                                                                                                                                                                                                                                                                                                                         Mutation Associated to Isoniazid Resistance in Italian Isolates of Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mycobacterium tuberculosis.
Mycobacterium tuberculosis
Mycobacterium tuberculosis
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
Actinomycetales; Corynebacterineae; Mycobacteriaceae;
Mycobacterium; Mycobacterium tuberculosis complex.
I (bases 1 to 2223)
Orru,G., Iona,E., Memmi,G., Oggioni,M.R., Fattorini,L., Orefici,G. and Pozzi,G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (18-OCT-2000) Dip. Biologia Molecolare, Laboratorio di
Microbiologia Molecolare e Biotecnologia, Universita' di Siena,
Viale Bracci, Siena 53100, Italy
Location/Qualifiers
                                  467 GCAAGAAGCTCTCATGGGCGGACCTGATTGTTTCGCCGGCAACTGCGCGCTGGAATCGA
                                                                                      1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                                                                  TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAGATGACTGGGAGTCGGACCTGG
                                                                                                                                         TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC

    1. .2223
    /organism="Mycobacterium tuberculosis"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="isoniazid resistant isolate"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /isolate="Rm09"
/db_xref="taxon:1773"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AF314121.1 GI:12744181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="katG"
1. .2223
/gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="KatG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 2223)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene, complete cds. AF314121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . 2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Orru, G
                                                                    1048
                                                                                                                                       1108
                                                                                                                                                                                                                                                                                                                                               1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             944
                                                                                                      527
                                                                                                                                                                                                                                            647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AF314121
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                셤
                                                                    ò
                                                                                             ద
                                                                                                                                       ò
                                                                                                                                                                    셤
                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                              å
                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=11
/product="catalase-peroxidase"
/protein_id="aAR06522.1"
/db_xref="GI:L374180"
/translation="MPEQHPPITETTTGAASNGCPVVGHMKYPVEGGGNQDWMPNRLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WADLIVFAGNCALESMGFKTFGFGFGRVDQWEPDEVYWGKEATWLGDERYSGKRDLEN
PLAAVQMGLIYVNPEGPNGNPDPMAAAVDIRETFRRMAMNDVETAALIVGGHTFGKTH
GAGPADLVGPEPEAAPLEQMGLGWKSSYGTGTGKDAITSGIEVVWTNTPTKWDNSFLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ILYGYEWELTKSPAGAWQYTAKDGAGGTIPDPFGGPGRSPTMLATDLSLRVDPIYER
ITRRWLEHPEELADEFAKAWYKLIHRDMGPVARYLGPLVPKQTLLWQDPVPAVSHDLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DPDGDLRKVIRTLEETQESFNSAAPGNIKVSFADLVVTGGGAAIEKAAKÄAĞHNITVP
FTPGRTDASQEQTDVESFAVLEPKADGFRNYLGKGNPLPAEYMLLDKANLLTLSAPEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TVLVGGLRVLGANYRRLPLGVFTEASESLTNDFFVNLLDMGTTWEPSPADDGTYQGRD
GSGRVKWTGSRVDLVVGSNSELRALVEVYGADDAQPRFVQDFVAAWDKVWNLDRFDVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LKVLHQNPAVADPMGAAFDYAAEVATIDVDALTRDIEEVMTTSQPWWPAAYGHYGPLF
IRWAWHAAGTYRIHDGRGGAGGGMQRPAPLNSWPDNASLDKARRLLWPVKKYGKKLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GEAEIASLKSQIRASGLTVSQLVSTAWAAASSFRGSDKRGCANGGRIRLQPQVGWEVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCCGATGGGTGCGGCGTTCGACTATGCCGCGGAGGTCGCGACCATCGACGTTGACGCCC 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                987
                                                                                                                 Mutation Associated to Isoniazid Resistance in Italian Isolates of Mycobacterium tuberculosis
                                                                                      Orefici, G.
                                                                                                                                                                                                                        Submitted (18-ocr-2000) Dip. Biologia Molecolare, Laboratorio di
Microbiologia Molecolare e Biotecnologia, Universita' di Siena,
Viale Bracci, Siena 53100, Italy
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227 TGACGCGGGACATCGAGGAAGTGATGACCACCTCGCAGCCGTGGTGGCCCGCCGACTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGATGGCCGGGGAGGCGCCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            347 ACGACGCCCCCCCCCCCCCCCCCCCATCCACCCTTCCCCCCCTTAACAGCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                  Orru, G., Iona, E., Memmi, G., Oggioni, M.R., Fattorini, L., and Pozzi, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
Mycobacterium tuberculosis
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1; Length 2223;
                                  Indels

    .2223
/organism="Mycobacterium tuberculosis"
/isolate="An05"

                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:1773"
/note="isoniazid resistant isolate"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 298.4; DB 1
Pred. No. 1.8e-77;
0; Mismatches 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     742 g
                                                                                                                                                                                                                                                                                                                                                                                                                  1. .2223
/gene="katG"
/note="KatG"
                                                                                                                                                                                                                                                                                                                                                                                                   /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20.0%;
llarity 62.4%;
Conservative
                                                                                                                                                                     2 (bases 1 to 2223)
Orru, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         υ
                                                                                                                                                                                                                                                                                                                                                                                 .2223
                                                                                                                                                                                                           Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                         Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       808
                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
 ORGANISM
                                                                                                                                                     JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                    REFERENCE
                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                     TITLE
```

셤 ò g g

å

g

ŏ

õ

```
MYCODACTERIUM tuberculosis INH-resistant strain 15726/89, mutant catalase-peroxidase (katG) gene, complete cds.
AGCAGGGACTGGGAAAAAAAAAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WADLIVFAGNCALESMGFKTFGFGFGRVDQWEPDEVYWGKEATWLGDERYSGKRDLEN
TAAVOWGLITVNPEGPRGNPDPWAAANDIRETRRAAMNDVETALIVGGHFEKTH
GAGPADLVGFBEPEAPLEOMGLGWKSSYGTGTGKDAITSGIEVWHYPTFKWNDSFLE
ILYGYEWELTKSPAGAWQYTAKDGAGAGTIPDPFGGPGRSPTMLATDLSLRVDPIYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DPDGDLRKVI RTLEETQESFNSAAPGNIKVSFADLVVLGGCAAIEKAARAAGHNITVP
FTPGRTDASQEQTDVESFAVPEPRADGFRNYLGRGNPLPAEYMLLDKANLLTLSAPEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MPEQHPPITETTTGAASNGCPVVGHMKYPVEGGGNQDWWPNRLN
LKVLHQNPAVADPMGAAFDYAAEVATIDVDALTRDIEEVMTTSQPWWPADYGHYGPLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IRMAWHAAGTYRIHDGRGGAGGGMQRFAPLNSWPDNASLDKARRLLWPVKKKYGKKLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GEAEIASLKSQIRASGLTVSQLVSTAWAAASSFRGSDKRGGANGGRIRLQPQVGWEVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TVLVGGLRVLGANYKRLPLGVFTEASESLTNDFFVNLLDMGITWEPSPADDGTYQGKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ITRRWLEHPEELADEFAKAWYKLIHRDMGPVARYLGPLVPKQTLLWQDPVPAVSHDLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GSGKVKWTGSRVDLVFGSNSELRALVEVYGADDAQPKFVQDFVAAWDKVMNLDRFDVR
                         884 AGATGGGCTTGGGCTGGAAGAGCTCGTATGGCACCGGAACCGGTAAGGACGCGGATCACCA 943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Marttila, H.J., Soini, H., Huovinen, P. and Viljanen, M.K.
Direct Submission
Submitted (13-NOV-1995) Harri J. Marttila, Mycobacterial Reference
Laboratory, National Public Health Institute, Kiinamyllynkatu 13,
Turku, SF-20520, Finland
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               688 AICCCIGGGGGCTGATTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 2223)
Marttila,H.J., Solli,H., Huovinen,P. and Viljanen,M.K.
katG gene mutations in Isoniazid-resistant Mycobacterium
tuberculosis isolated from Finnish patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .,
                                                                                                                                                                                                                                                                                                                                                                                          Bacteria, Firmicutes, Actinobacteria, Actinobacteridae, Actinomycetales, Corynebacterineae, Mycobacteriaceae, Mycobacterium; Mycobacterium tuberculosis complex.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism-"Mycobacterium tuberculosis"
/strain-"15726/89"
/db_xref-"taxon:1773"
                                                                                                                                                                                                                                                                                                                                                      Mycobacterium tuberculosis strain=15726/89. Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 298.4; DB 1;
Pred. No. 1.8e-77;
0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="catalase-peroxidase"
/protein_id="AAA85167.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="INH-resistant strain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    358 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                          944 GCGCATCGAGGTCGTATGGACGA 967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="GI:1150696"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="mutant katg"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  741 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="katG"
1. .2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="katg"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 20.0%;
Best Local Similarity 62.4%;
Matches 502; Conservative (
                                                                                                                                                                                                                                                                                                            GI:1150695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 2223)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    o 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished
                                                                                                                                                                                                                                                                                                            040593.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    428
1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                         MTU40593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                  g
                                                                                ò
                                                                                                                용
  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                IRMAWHAAGTYRIHDGRGGAGGMGRFAPLNSWPDNASLDKARRLLWPVKKKYGKKLS
MADLIYRARGNALESMGFKTFGEGFGRYDQWEDEDYWGKEATWLGDBRYSGKRDLEN
PLAAVQMGLIYVNEGENGRUPDPMAAVDIRETFRRAMMNDYETAALIVGGFTGKT
GAGPADLVGPEPEAAPLEQMGLGWKSSYGTGTGKDAITSGIEVVWTNFPTKWDNSFLE
ILKGYEWELTKSPAGANQYTAKDGAGAGTIPDFGGGRGRSPFWLATDLSLRVDPIYER
ILTRRALEHPEELADERAKWYKLIHEDMGFYARYTGPLYPKQTLLWQDPVPAYSHDLY
GEAEIASLKSQIRASGLIVSGLVSTAWAASSFRGSDKRGGANGGRIRLAQPQVGWEVN
                                                                                                                                                                                                                                                             DPDGDLRKVIRTLEEIQESFNSAAPGNIKVSFADLVVLGGGAAIEKAAKAAGHNITVP
FYGRUDASOGGTDVBERFAVLEKRADGERNILGKGNPLDAEBEYHLLDKRALLILGABEM
FYLVGGLRVLGANYKRLPLGVFTEAGESLTNDFFVNLLDMGTWEPSPADDGTYQGKD
GSGKVKWTGSRVDLVPRSNSELRALVEVYGADDAQPKFVQDFVAAWDKVWNLDREDVR
                                                                           translation="MPEQHPPITETITGAASNGCPVVGHMKYPVEGGGNQDWWPNRLN"
                                                                                             LKVLHQNPAVADPMGAAFDYAAEVATIDVDALTRDIEEVMTTSQPWWPADYGHYGPLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TICAGAAACCICITGCCGCCACGCAGAIGGGACTIAITTATGTCAATCCTGAAGGCCCCCG 1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGATAACGITAATCIGGATAAAGCCCGICGATIGCIGIGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGGGGTTACAGCGGTAAGGGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 2223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 298.4; DB 1;
Pred. No. 1.8e-77;
0; Mismatches 296;
            /product="catalase-peroxidase"
/protein_id="AAK06523.1"
/db_xref="GI:12744182"
                                                                                                                                                                                                                                                                                                                                                                     359
                                                                                                                                                                                                                                                                                                                                                                       Б
                                                                                                                                                                                                                                                                                                                                                                                                                             20.0%;
al Similarity 62.4%;
502; Conservative
                                                                                                                                                                                                                                                                                                                                                                695 c
                                                                                                                                                                                                                                                                                                                                                                   429
                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S:
Matches 502,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            827
                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
```

à q õ g ò g ŏ g ò g ö g à g ŏ 셤 747

g

ŏ

g

ă

QQ

ò

ŏ

g

à

à 셤 ò

ద ò 셤

ò

셤

q ò 셤 à 셤 ò g

à

```
/product-"catalase-peroxidase"
protein_id-"AAA85169.1"
/db_xref-"Gi_50700"
/translation-"MPEQHPPITETTTGAASNGCPVVGHMKYPVEGGGNQDWWPNRLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1047
                                                                                                                                                                                                                                                                                                                                                                  LKVLHQNPAVADPMGAAFDYAAEVATIDVDALTRDIEEVMTTSQPWWPADYGHYGPLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1107
2 (bases 1 to 2223)
Martila,H.J., Soini,H., Huovinen,P. and v...,-...
Direct Submission
Submitted (13.00v-1995) Harri J. Martilla, Mycobacterial Reference
Submitted (13.00v-1995) Harri J. Martilla, Mycobacterial Reference
Laboratory, National Public Health Institute, Kiinamyllynkatu 13,
Turku, SF-20520, Finland
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATACTGGGGCCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         167 ACCCGATGGGTGCGCGTTCGACTATGCCGCGGAGGTCGCGACCATCGACGTTGACGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    868 ATGATGGCCGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTCCAGTATTTCCTGGGGAGACCTGATGTCCTGACTGGTAATGTTGCCCTTGAATCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCAAGAAGCTCTCATGGGCGGACCTGATTGTTTTCGCCGGCAACTGCGCGCTGGAATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGCTGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _
=
=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 298.4; DB 1;
Pred. No. 1.8e-77;
0; Mismatches 296;
                                                                                                                                                                               /note="INH-resistant strain"
                                                                                                                                 /organism="Mycobacterium
/strain="H0251/90"
/db_xref="taxon:1773"
                                                                                                                                                                                                                                                          note-"mutant katg"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     741
                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20.0%;
62.4%;
                                                                                                                                                                                                                          1. .2223
/gene="katG"
                                                                                                                                                                                                            /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 20.0
Best Local Similarity 62.4
Matches 502; Conservative
                                                                                                                                                                                          1, .2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    467
                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
           REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                               gene
                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            07-JAN-1996
                                                                                                                                                                                                                                                                                     GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                           TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                         466
                                                                                                                                                                                                                                                                                                                    526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    943
                                                                                                                                                                                                                                                                                                                                                                                                                                             646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          807
                                                                      286
                                                                                                    867
                                                                                                                                                               927
                                                                                                                                                                                          406
                                                                                                                                                                                                                          987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MTU40595 2223 bp DNA linear BCT 07-JAN-19
Mycobacterium tuberculosis INH-resistant strain H0251/90, mutant
         ACCCGATGGGTGCGGCGTTCGACTATGCCGGGGGGTCGCGACCATCGACGTTGACGCCC
                                                           GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                         1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGCGTTACAGCGGTAAGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      827 ATGGCGCCG---GCCCGGCCGATCTGGTCGGCCCCGAACCCGAGGCTGCTCCGCTGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCAGGGACTGGGATGGAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                              ATGATGGCCGGGGGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Firmicutes; Actinobacteria, Actinobacteridae, Actinomycetales; Corynebacterineae; Mycobacterium; Mycobacterium tuberculosis complex.

1 (bases 1 to 2223)
Marttila, H.J., Soini, H., Huovinen, P. and Viljanen, M.K. KatG gene mutations in Isoniazid-resistant Mycobacterium tuberculosis-strains isolated from Finnish patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       catalase-peroxidase (katG) gene, complete cds. U40595
U40595.1 GI:1150699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mycobacterium tuberculosis strain-H0251/90.
Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GIGGCCIGGAAGGAGCCIGGICGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               944 GCGGCATCGAGGTCGTATGGACGA 967
                                                                                                                               287
                                                                                                                                                                                                                         928
                                                                                                                                                                                                                                                                                    886
                                                                                                                                                                                                                                                                                                                                                                                                           1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1405
                                                                                                                                                              868
                                                                                                  808
                                                                                                                                                                                                                                                                                                                  467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1465
         167
                                      748
                                                                                                                                                                                                                                                                                                                                                                                                                                          587
                                                                    227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 38
MTU40595
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
```

g

ò

셤

ö

g

ð

ò

ñ

셤 à a à 셤

ö 셤 ö 셤 셤 ò 셤

å

```
07-JAN-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  988 GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1048 TGGGATTTAAAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1108 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAA 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1285 CCATGGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1225 GIGGAAAACCAGAICCICIGGCIICCGCGAAAGAIAICAGGGAAGCIITIICACGIAIGG 1284
                                                                                                                                                                                                                          286
                                                                                                                     747
                                                                                                                                                       226
                                                                                                                                                                                         807
                                                                                                                                                                                                                                                            867
                                                                                                                                                                                                                                                                                  287 GCCACTACGGGCCGCTGTTTATCCGGATGGCGTGGCACGCTGCCGGCACCTACCGCATCC 346
                                                                                                                                                                                                                                                                                                                               927
                                                                                                                                                                                                                                                                                                                                                             347 ACGACGCCCCCCCCCCCCCCCCCCCCCCCATGCAGCGCTTCCCCCCCTTAACAGCTGGC 406
                                                                                                                                                                                                                                                                                                                                                                                                 987
                                                                                                                                                                                                                                                                                                                                                                                                                  586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           647 TGGAGAAACCCGCTGGCGGCGGTGCAGATGGGGCTGATCTACGTGAACCCGGAGGGGCCGA 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 943
                                                                                                                                                                                                             GTCATTATGGTCCTTTCTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGCATT
                                                                                                                                                                                                                                                                                                                                                                                                 928 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   587 TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGCGTTACAGCGGTAAGCGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCCGATGGGTGCGGCGTTCGACTATGCCGCGGAGGTCGCGACCATCGACGTTGACGCCC
                                                                                                                                                                                         748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                               ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                     688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MTU41306 2223 bp DNA linear BCT 0 Mycobacterium tuberculosis INH-resistant strain H0055/92, catalase-peroxidase (katG) gene, complete cds. U41306 U41306.1 GI:1150705
                                                                                  9;
                                                Length 2223;
                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
Mycobacterium tuberculosis strain=H0055/92
                                                  DB 1;
                                                                                    296;
                                                  Score 298.4; DB Pred. No. 1.8e-77
                                                                                  0; Mismatches
 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            944 GCGCCATCGAGGTCGTATGGACGA 967
   ь
 740
                                                20.0%;
62.4%;
 ပ
                                                                    al Similarity 62.4
502; Conservative
695
   ø
 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1465
                                                  Match
                                                                                                                                                       167
                                                                                                                                                                                                                          227
                                                                                                                                                                                                                                                          808
                                                                                                                                                                                                                                                                                                                               868
                                                                      Local
BASE COUNT
ORIGIN
                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MTU41306
                                                    Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                     염
                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                      ð
                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="catalase-peroxidase"
protein_id="aAA85111.1"
/db_xref="GI:LI57104"
/translation="MPEQHPPITETTIGAASNGCPVVGHMKYPVEGGGNQDWWPNRLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LKVLHONPAVADPMGAAFDYAAEVATIDVDALTRDIEEVMTTSOPWWPADYGHYGPLF
TRAWHAAGTYRIHOGRGGAGGMQRFAPLNGWPDNASLIDKARRLLWPWKKYGKKLS
WADLIVFAGNCALESMGFKTFGFGFGRVDQMEDDFYWGKBATWLGDBRYSGRDLEN
PLAAVQMGLIYVNPEGPNGNPDPMAAAVDIRETFRRWAMNDVETAALIVGGHTFGKTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MTU41305 2223 bp DNA linear BCT 07-JAN-1996 Mycobacterium tuberculosis INH-resistant strain H0359/91, mutant catalase-peroxidase (katG) gene, complete cds.
                                                                                                   1284
                                                                                                                                                                       1344
                                                                                                                                                                                                                                        ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                             AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
Submitted (27-NOV-1995) Harri J. Marttila, Mycobacterial Reference
Laboratory, National Public Health Institute, Kiinamyllaynkatu 13,
Turku, SF-20520, Fihland
Location/Qualifiers
                                                                                                                                     992
                                                                706
                                                                                                                                                                                                                                                                                                                                               943
TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGCGTTACAGCGGGTAAGCGGGATC
                                                647 TGGAGAACCCGCTGGCCGCGGTGCAGATGTACTACGTGAACCCGGAGGGGCCGA
                                                                                                                      CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGCATACATTTGGTAAAGCAC
                                                                                                                                                                                           GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Actinomycetales, Corynebacterineae, Mycobacteriaceae, Mycobacterium, Mycobacterium tuberculosis complex.

1 (bases 1 to 2223)
Marttila, H.J., Solni, H., Huovinen, P. and Viljanen, M.K. katG gene mutations in Isoniaaid-resistant Mycobacterium tuberculosis strains isolated from Finnish patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Marttila, H.J., Soini, H., Huovinen, P. and Viljanen, M.K. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tuberculosis'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mycobacterium tuberculosis strain-H0359/91
Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /strain="H0359/91"
/db_xref="taxon:1773"
/note="INH-resistant strain"

    .2223
    /organism="Mycobacterium"

                                                                                                                                                                                                                                                                                                                                                                               GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                              GCGGCATCGAGGTCGTATGGACGA 967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="mutant katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGPADLVGPEPEAAPLE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .885
/gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     U41305.1 GI:1150703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 2223)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished
                                                                                                   1225
                                                                                                                                                                                                                                        1345
                                                                                                                                                                                                                                                                                                             1405
                                                                                                                                                                                                                                                                                                                                             884
                                  1165
                                                                                                                                                                       1285
                                                                                                                                                                                                                                                                          827
                                                                                                                                                                                                                                                                                                                                                                               1465
                                                                                                                                                                                                      167
                                                                                                                                                                                                                                                                                                                                                                                                              944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 39
MTU41305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
```

646

1344

826

1284

99/

206

1404

1464

```
BCT 07-JAN-1996
                                                                                                                                                                                                                   Submitted (27-NOV-1995) Harri J. Marttila, Mycobacterial Reference Laboratory, National Public Health Institute, Kiinamyllaynkatu 13, Turku, SF-20520, Finland Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCAAGAAGCTCTCATGGGCGGACCTGATTGTTTTCGCCGGCAACTGCGCGCTGGAATCGA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mycobacterium tuberculosis INN-resistant strain H0004/93, mutant catalase-peroxidase (katG) gene, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                              1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG
                                                                       1108 TATACTGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                                                                              1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                                                                                                                                                          1285 CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGCCATACATTTGGTAAAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    827 ATGGCGCCG---GCCCGGCCGATCTGGTCGGCCCCGAACCCGAGGCTGCTCCGCTGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1405 AGCAGGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA
                                                                                                                                                                         587 ICTATIGGGCCAAGGAAGCCACCIGGCICGGCGAIGAGCGITACAGCGGTAAGCGGGAIC
                                                                                                                                                                                                                                                                                                                                1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mycobacterium; Mycobacterium tuberculosis complex.

1 (bases 1 to 2223)
Marttlia, H.J., Solni, H., Huovinen, P. and Viljanen, M.K. katG gene mutations in Isoniazid-resistant Mycobacterium tuberculosis strains isolated from Finnish patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 (bases 1 to 2223)
Marttila, H.J., Soini, H., Huovinen, P. and Viljanen, M.K.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Actinomycetales; Corynebacterineae; Mycobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .2223
/organism="Mycobacterium tuberculosis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mycobacterium tuberculosis strain=H0004/93.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="catalase-peroxidase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="INH-resistant strain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2223 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /strain="H0004/93"
/db_xref="taxon:1773"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="mutant katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      U41310.1 GI:1150713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MTU41310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 41
MTU41310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                            ŏ
                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                             염
                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                            ŏ
                                                                                  g
                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /traislation-"MPEQHPPITETTGAASNGCPVVGHMKYPVBGGGRODDWPDRLN
LKVLHQNPAVADPMGAAFDYAAEVATIDVDALTRDIEEVMTTSQPWWPADYGHYGPLF
IRMAHTAAGTYRIHOGRGGAGGGMORPAPLNSWPDNASLDKARRLLWPVKKKYGKKLS
MADLIVFAGROCALESMGFKTGFGFGRVDWPPDEVYWGKRATWLGDERYSGKRDLEN
PLAAVOMGLIYVNBGFBCRVDWPDETYWGKBATHLGGERFGKTH
GAGPADLVGPEPEAAALLGMGLGWKSSYGTGTGKDAITSGIEVVWTNTPTKWDNSFLE
ILYGYEWELTKSPAGAWQYTAKDGAGAGTIPDPFGGFGRSPTMLATDLSLRVDPIYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ITRRWLEHPEELADEFAKAWYKLIHRDMGPVARYLGPLVPRGTLLWODPVPAVSHDLV
GERÐETASKRÓJIKASGLIVSGLOVSTAWAAASSERFKGSKRKGAGNGGRIHLALDQPVGWEVN
DPDGDIRKYTRTLEELGESPRSAAPONIKVSFADLVVLGGCAAIEKAAKAAGHHITVP
FTPGRTDASQEQTDVESFAVLEPKADGFRNYLGKGNPLPAEYMLLDKANLLTLSAPEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TVLVGGLRVLGANYKRLPLGVFTEASESLTNDFFVNLLDMGITWEPSPADDGTYQGKD
GSGKVKWTGSRVDLVFGSNSELRALVEVYGADDAQPKFVQDFVAAWDKVMNLDRFDVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                        2 (bases 1 to 2223)
martila, H.J., Solni, H., Huovinen, P. and Viljanen, M.K.
Direct Submission
Submitted (27-NOV-1995) Harri J. Marttila, Mycobacterial Reference
Laboratory, National Public Health Institute, Kilnamyllaynkatu 13,
Turku, SF-20520, Finlans
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGACAACGCCAGCTIGGACAAGGCGCGCCGCTGTGGCCGGTCAAGAAGAAGTACG 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              868 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC 927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG 807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                       Mycobacterium; Mycobacterium tuberculosis complex.

1 (bases 1 to 2223)
Marttila,H.J.; Solni,H., Huovinen,P. and Viljanen,M.K. katG gene mutations in Isoniazid-resistant Mycobacterium tuberculosis strains isolated from Finnish patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
9
Mycobacterium tuberculosis
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20.0%; Score 298.4; DB 1; Length 2223; 62.4%; Pred. No. 1.8e-77;
                                              Actinomycetales; Corynebacterineae; Mycobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                         1. 2223
/organism="Mycobacterium tuberculosis"
/strain="#0055/92"
/db_xref="taxon:1773"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    =
=
-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="catalase-peroxidase"
/protein_id="AAA85172.1"
/db_xref="GI:1150706"
                                                                                                                                                                                                                                                                                                                                                                                                                             'note="INH-resistant strain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                741 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                   .2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    695
                                                                                                                                                                         Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         988
                                                                                                                                                                                                                                                                                                                                               source
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                            AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                      JOURNAL
                                                                                                                                                                                               REFERENCE
                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                            TITLE
```

ò 셤

셤

a ò q ò 셤

ò

```
2223 bp DNA linear BCT 07-JAN-1996 Mycobacterium tuberculosis INH-resistant strain H0211/94, Catalase-peroxidase (katG) gene, complete cds. U41313 GI:1150719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DPDGDLRKVIRTLEEIQESFNSAAPGNIKVSFADLVVLGGCAAIEKAAKÄAGHNITVP
FTPGRTDASCRUTVESFAYLERKADGERNILGKORPLPAEPTHLLDKARLLILGAPEM
FTVLVGGLRVLGANTRELPLGYFTEASESLTNDFFVNLLDMGTTWEPSPADDGTYGKD
GSGKVKWTGSRVDLVFGSNSELRALVEVYGADDAQPKFVQDFVAAMDKVNNLDBRDVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation-"MPEQHPPITETTTGAASNGCPVVGHMKYPVEGGGNODWWPNRLN
LKVLHQNPAVADPMGAAFDYAAEVATIDVDALTRDIEEVMTTSQPWWPADYGHYGPLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IRMAWHAAGTYRIHDGRGGAGGGQQRPPAPLNSWPDNASLDKARRLLMPVKKKYGKRLS
WADLIVFAGNCALESMGFKTFGFGFGRVDQWEPDEVYWGKEATWLGDERYSGKRDLEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PLAAVQMGLIYVNPEGPNGNPDPMAAAVDĪRETFRRMAMNDVETAALIVGGHTEGKTH
GAGPADLVGPEPEAAPLEQMGLGWKSSYGTGTGKDAITSGIEVVWTNTPTKWDNSFLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ILYGYEWELTKSPAGAWQYTAKDGAGAGTIPDPFGGPGRSPTMLATDLSLRVDFIYER
ITRRWLEHPEELADEFAKAWYKLIHRDMGPVARYLGPLVPKQTLLWQDPVPAVSHDLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GEAEIASLKSQIRASGLTVSQLVSTAWAAASSFRGSDKRGGANGGRIRLQPQVGWEVN
884 AGATGGGCTTGGGCTGGAAGAGCTCGTATGGCACCGGAACCGGTAAGGACGCGATCACCA 943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 (bases 1 to 2223)
Marttila, H.J., Soini, H., Huovinen, P. and Viljanen, M.K.
Direct Submission
Submitted (27-NOV-1995) Harri J. Marttila, Mycobacterial Reference
Laboratory, National Public Health Institute, Kiinamyllaynkatu 13,
Turku, SF-20520, Finland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      167 ACCCGATGGGTGCGCGTTCGACTATGCCGCGGAGGTCGCGACCATCGACGTTGACGCCC 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGAAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG 807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    = = = = =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 2233)
Marttila H.J., Soini, H., Huovinen, P. and Viljanen, M.K.
katG gene mutations in Isoniazid-resistant Mycobacterium
tuberculosis strains isolated from Finnish parients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1; Length 2223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Actinomycetales; Corynebacterineae; Mycobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mycobacterium; Mycobacterium tuberculosis complex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels

    1. 2223
    /organism="Mycobacterium tuberculosis"

                                                                                                                                                                                                                                                                                                                                                                                                                        Mycobacterium tuberculosis strain=H0211/94. Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="catalase-peroxidase"
/protein_id="AAA85179.1"
/db_xref="GI:1150720"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 298.4; DB
Pred. No. 1.8e-77
0; Mismatches 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="INH-resistant strain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           359
                                                       1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                     /db_xref-"taxon:1773"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           741 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /strain-"H0211/94"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="katG"
1, 2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1. .2223
/gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20.0%;
ilarity 62.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        695 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S:
Matches 502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                  RESULT 42
                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                            MTU41313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                            셤
셤
                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                           WADLIVPAGNOALESSMOFKTFOFGGGGROND WADDLIVPAGNAKLLIF TRAKACKER PRACTORICE PRACTORICE TO THE ANALYSMORE PROPERTIES OF THE TRAKACKER PROPERTIES OF THE TOTAL TRAKACKER PROPERTIES OF THE TRAKACKER PROPERTIES OF THE TOTAL TRAKACKER PROPERTIES OF THE TRAKACKER P
                                               /translation="MPEQHPPITETTIGAASNGCPVVGHMKYPVEGGGNQDWWPNRLN
LKVLHQNPAVADPMGAAFDYAAEVATIDVDALFRDIEEVMTTSQPWWPADYGHYGPLF
IRMAWHAAGTYRIHDGRGGAGGGMQRFAPLNSWPDNASLDKARRLLWPVKKKYGKKLS
                                                                                                                                                                                                                                                                                                                                                                                           GSGKVKWTGSRVDLVFGPNSELRALVEVYGADDAQPKFVQDFVAAWDKVMNLDRFDVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTCCAGTATTTCCTGGGGAGCCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1108 TATACTGGGGGCCTGACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCAGGGACTGGGAAAAAAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGGCGCG---GCCCGGCCGATCTGGTCGGCCCGAACCCGAGGCTGCTCGCTGGAGC 883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGACGCGGGACATCGAGGAAGTGATGACCACCTCGCAGCCGTGGTGGCCCGCCGACTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  587 TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGCGTTACAGCGGTAAGCGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1285 CCAIGGAIGAIGAGAGACIGIGGCCCIGAICGCGGGAGGGCAIACAITIGGIAAAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 =
=
-
-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 298.4; DB 1; Length 2223;
Pred. No. 1.8e-77;
); Mismatches 296; Indels 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 =
=
=
=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                             741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20.0%;
llarity 62.4%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                o 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                ø
                                                                                                                                                                                                                                                                                                                                                                                                                                             428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Sim:
Matches 502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   827
                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
```

ò g ö 셤 셤

ö 셤

ö

ò g g

ò

g

Q g ŏ g ö q ð ŏ a ö

g

ŏ

q

ò a ò g ò

ð 셤 ö 셤

g

ò

요

ò

. g

셤 δ 셤 õ

ò

ð

```
/translation="MPEQHPPITETTTGAASNGCPVVGHMKYPVEGGGNODWWPNRLN
LKVLHQNPAVADPMGAAFDYAAEVATIDVDALTRDIEEVMTTSQPWWPADYGHYGPLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTATGTCAATCCTGAAGGCCCGG 1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       987
 Laboratory, National Public Health Institute, Kiinamyllaynkatu 13,
Turku, SF-20520, Finland
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               868 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGATAACGTTAATCTGGATAAAGCCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGCGTTACAGCGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGGCTTCAAGACGTTCGGCTTCGGCTCGGCTCGACCAGTGGGAGCCCGATGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 298.4; DB 1; Length 2223;
Pred. No. 1.8e-77;
0; Mismatches 296; Indels 6;
                                                            tuberculosis
                                                                                                                                                                                                    /transl_table=11
/product="catalase=peroxidase"
/protein_id="aAAA8180.1"
/db_xref="G1:1150722"
                                                                                                     /note="INH-resistant strain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360 t

    .2223
    /organism="Mycobacterium
/strain="H0725/93"
    /db_xref="taxon:1773"

                                                                                                                                                           /gene="katG"
/note="mutant katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     741 g
                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20.0%;
llarity 62.4%;
Conservative (
                                                                                                                 1. .2223
/gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     O
                                                                                                                                               1. .2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Loca
Matches
                                                                                                                    gene
                                                                                                                                               CDS
                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MTU41314 2223 bp DNA linear BCT 07-JAN-1996 Mycobacterium tuberculosis INH-resistant strain H0725/93, mutant catalase-peroxidase (katG) gene, complete cds.
                                                                                                                                                                                                                                                              1107
                                                                                                                                                                                                                                                                                                                                                                                                                                        1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                   GCTCCAGTATTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                    TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                  646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 (bases I to 2223)
Marttila, H.J., Solni, H., Huovinen, P. and Viljanen, M.K.
Direct Submission
Submitted (27-NOV-1995) Harri J. Marttila, Mycobacterial Reference
                                                                                                                 406
                                                                                                                                                             987
TGACGCGGGACATCGAGGAAGTGATGACCACCTCGCAGCCGTGGTGGCCCGCCGACTACG
                                                                                   ATGATGGCCGGGGAGGCGCCAGTGGTGGTCACCAACGTTTTGAACGGCTGAACAGCTGGC
                                                                                                     CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                  1048 regeatitaaaacecregeatitiecregegaagagaagateacregeagregege
                                                                                                                                                                                                                                                                           GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACGCCAACCCCGACCCCATGCCGCGGCGTCGACATTCGCGAGACGTTTCGCCGATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 827 ATGGCGCCG---GCCCGGCCGATCTGGTCGGCCCCGAACCCGAGGCTGCTCCGCTGGAGC
                                           GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mycobacterium; Mycobacterium tuberculosis complex.

1 (bases 1 to 2223)

Marttila, H.J., Solni, H., Huovinen, P. and Viljanen, M.K. katG gene mutations in isoniazid-resistant Mycobacterium tuberculosis strains isolated from Finnish patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mycobacterium tuberculosis strain-H0725/93.
Mycobacterium tuberculosis
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
Actinomycetales; Corynebacterineae; Mycobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      U41314.1 GI:1150721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished
                                                                                                                                                                                                                                                                                                                    1108
                                                                                                                                                                                                                                                                                                                                                                                                                                     1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1465
                                                                                   868
                                                                                                              347
                                                                                                                                                                      407
                                                                                                                                                                                                                                                                                       527
                                                                                                                                                                                                                                                                                                                                                                                                         647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         767
                                                                                                                                           928
                                                                                                                                                                                                   988
                                                                                                                                                                                                                               467
                                                                                                                                                                                                                                                                                                                                               587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 43
MTU41314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
```

ñ

```
FTPGRTDASQEQTDVESFAVLEPKADGFRNYLGKGNPLPAEYMLLDKANLHLRSVPLR
                               نه
                               359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2235 bp
Sequence 1 from patent US 5658733.
161339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1465 GIGGCCIGGAAGGAGCCIGGICGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          967
                                 ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                741
                                                                              20.0%;
62.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     I61339.1 GI:2479287
                                                                                             Local Similarity 62.4 nes 502; Conservative
                               695
                                 ď
                                 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1165
                                                                                                                                                                                                                                          227
                                                                                                                                                                                                                                                                                                      287
                                                                                                                                                                                                                                                                                                                                                                                                                                 407
                                                                                                                                                                                                           748
                                                                                                                                                                                                                                                                          808
                                                                                                                                                                                                                                                                                                                                                                      347
                                                                                                                                                                                                                                                                                                                                                                                                   928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             527
                                                                               Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
ACCESSION
                                                                                                Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 45
161339
                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                 Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                               ð
                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                         g
                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MPEQHPPITETTTGAASNGCPVVGHMKYPVEGGGNQDWWPNRLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LKVLHONPAVADPMGAAFDYAAEVAT IDVDALTRDI EEVMTTSQPWWPADYGHYGPLF
IRMAWHAAGTYR I HDGRGGAGGAQRFAPLNSWPDNASLDKARRLLWPVKKKYGKKLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WADLIVFAGNCALESMGFKTFGFGRVDOWEPDEVYWGKEATWLGDERYSGKRDLEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLAAVQMGLIYVNPEGPNGNPDPMAAAVDIRETFRRMAMNDVETAALIVGGHTFGKTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGPADLYGPEPEAAPLEOMGLGWKSSYGTGTGKDAITSG1EVVWTNTPTKWDNSFLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ILYGYEWELTKSPAGAWQYTAKDGAGAGTIPDPFGGPGRSPTMLATDLSLRVDPIYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ITRRWLEHPEELADEFAKAWYKLIHRDMGPVARYLGPLVPKQTLLWQDPVPAVSHDLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GEAETASLKSQTRASGLTVSQLVSTAWAAASSFRGSDKRGGANGGRIRLQPQVGWEVN
DPDGDLRKVIRTLEETQESFNSAAPGNIKVSFADLVVLGGCAAIEKAAKAAGHNITVP
                                                                                              1344
                                                                                                                                                                                                                                                                                                                                                                                                     07-JAN-1996
                                 1225 GIGGAAAACCAGAICCITGIGGCIICCGGGAAAGAIAICAGGGAAGCTITITGAGGTAIGG 1284
                                                                                                                                                            ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                           1405 AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (37:NOV-1995) Harri J. Marttila, Mycobacterial Reference Laboratory, National Public Health Institute, Kiinamyllaynkatu 13, Turku, SF-20520, Finland
                                                                                                                                                                                                                                            707 ACGCAACCCGGACCCCATGCCCGCGGCGGTCGACATTCGCGAGACGTTTCGGCCCATGG 766
 TGGAGAACCCGCTGGCGGGTGCAGATGGGGGCTGATCTACGTGAACCCGGAGGGGCCGA 706
                                                                                                                                                                                                                                                                                                                                                                                              MIV41304 2225 bp DNA linear BCT 07-JAN-15
Mycobacterium tuberculosis INH-resistant strain H0078/91, mutant
catalase-peroxidase (katG) gene, complete cds.
                                                                                                                                                                              CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGCATACATTTGGTAAAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 2225)
Marttila H.J., Solni, H., Huovinen, P. and Viljanen, M.K.
katg gene mutations in Isoniazid-resistant Mycobacterium
tuberculosis strains isolated from Finnish patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mycobacterium tuberculosis strain-H0078/91.
Mycobacterium tuberculosis
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Marttila, H.J., Soini, H., Huovinen, P. and Viljanen, M.K. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Actinomycetales; Corynebacterineae; Mycobacteriaceae; Mycobacterium; Mycobacterium tuberculosis complex.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Mycobacterium tuberculosis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
/product="catalase-peroxidase"
/protein_id="AAA85170.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="INH-resistant strain"
                                                                                                                                                                                                                                                                                           1465 GIGGCCIGGAAGGAGCCIGGICGA 1488
                                                                                                                                                                                                                                                                                                             GCGCCATCGAGGTCGTATGGACGA 967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:1773"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="GI:1150702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="katG"
/note="mutant katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /strain="H0078/91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .1875
/gene="katG"
1. .1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 U41304.1 GI:1150701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 2225)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished
                                                                                                1285
                                                                                                                                                              1345
                                                                                                                                                                                                                                                                                                                         944
   647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                      RESULT 44
MTU41304
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                         g
                                  ò
                                                                셤
                                                                                                  ð
                                                                                                                            ద
                                                                                                                                                               à
                                                                                                                                                                                            셤
                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                           ò
```

```
PAT 07-0CT-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1108 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCAGAAACCICTTGCCGCCACGCAGGAGTGGGACTTATTTATGTCAATCCTGAAGGCCCCG 1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCATGGATGAGGAGACTGTGGCCCTGATCGCGGGAGGCCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCAGGGACTGGGAAAAAAAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAGATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GIGGAAAACCAGAICCICIGGCIICCGCGAAAGAIAICAGGGAAGCIIIIITCACGIAIGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGACAACGCCAGCTTGGACAAGGCGCCGGCTGCTGTGGCCGGTCAAGAAGAAGTACG 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 647 regagaaccecreececececrecagaresecreareractacereaaccessasses 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           987
                                                                                                                                                                                                                                                                                                                                                                                 167 ACCCGATGGGTGCGGCGTTCGACTATGCCGCGGAGGTCGCGACCATCGACGTTGACGCCC 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       868 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC 927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                707 ACGCCAACCCGGACCCCAIGGCCGCGGCGGTCGACATICGCGAGACGTTCGGCGCAIGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         827 Argeogocos -- - Gocogeocoarcresices accesas accesa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    resecritcaagacgricescritcscritcsGCCGGGTCGACCAGTGGGAGCCCGATGAGG
                                                                                                                                    Gaps.
                                                                                                                             9
Length 2225;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                    Indels
Score 298.4; DB 1;
Pred. No. 1.8e-77;
0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA
```

```
03-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1048 TGGGATTTAAAACGCTGGGATTTGCTGCGGAAGAAGATGACTGGGAGTCGGACTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GIGGAAAACCAGAICCTCIGGCTICCGCGAAAGAIAICAGGGAAGCTITITCACGIAIGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGAGAACCCGCTGCCGCGGTGCAGATGGGGCTGATCTACGTGAACCCGGAGGGGCCGA 715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGACAACGCCAGCTTGGACAAGGCGCGCCGGCTGTGGCCGGTCAAGAAGAAGTACG
                                                                                                                                                                                                                                                                                                                                                        CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                        IGAAAAAAAGATATGCTGACAACTTCCCAGGATTGGTGCCCTCCGGGATTATG
                                                                                                                                                                                                                                                                                                                         236 TGACGCGGGACATCGAGGAAGTGATGACCACCTCGCAGCCGTGGTGGCCCGCCGACTACG
                                                                                                                                                                                                                                                                                                                                            GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TATACTGGGGCCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGCGTTACAGCGGTAAGCGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              868 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                      tuberculosis
                                PAT
                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                      Length 2235;
                                                                                                                                                                                                                                         Indels
                                linear
                                                                                                                                    Æ.
                                                                                                                                    oŧ
                                                                                                                                                                                                                   Score 298.4; DB 6;
Pred. No. 1.8e-77;
0; Mismatches 296;
                                                                                                                                                                                                                    DB 6;
                                                                                                              1 (bases 1 to 2235)
Cockerill, F.R., Kline, B.C. and Uhl, J.R.
Detection of isoniazid resistent strains
Patent: US 5686639-A 1 18-NOV-1997;
                                                                                                                                                                                       363
                                2235 bp
US 5688639.
                                                                                                                                                     Location/Qualifiers
1. .2235
                                                                                                                                                                          /organism="unknown"
696 c 745 g
                                        1 from patent
                                                                                                                                                                                                                   20.0%;
ilarity 62.4%;
Conservative 0
                                                            GI:3010434
                                                                                                     Unclassified.
                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 502; Conserv
                              174293
Sequence 1
174293
174293.1
                                                                                                                                                                                       æ
                                                                                Unknown
                                                                                           Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1285
                                                                                                                                                                                                                                                                                                    748
                                                                                                                                                                                                                                                                                                                                              808
                                                                                                                                                                                                                                                                                                                                                                 396
                                                                                                                                                                                                                                                                                                                                                                                                                            928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   929
         RESULT 46
174293
LOCUS
DEFINITION
                                                                                                                                                                   source
                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                           ORGANISM
                                                                                                                                            JOURNAL
FEATURES
                                                                                                                        AUTHORS
TITLE
                                                                                                              REFERENCE
                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                               엄
                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                 1164
                                                                                                                                                                                                                                                                                                                                                                                                                            1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                              235
                                                                                                                                                                                                                                                                                                                        415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    952
                                                                                                                                                                                                                                                                                                                                                                475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        807
                                                                                                                                                                                                                                                           867
                                                                                                                                                                                                                                                                                                   927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Argeoecce---ecceeccearcreerceecceaaccceaecrecreereere
                                                                                                                                                                                                                                                                                                                                           CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG 987
                                                                                                                                                                                     ACGCCAACCCGGACCCCATGGCCGCGGCGGTCGACATTCGCCGAGGCGTTCGCGCATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                          GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                           TGGGATTTAAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                         ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                       Gaps
              Unclassified.
1 (bases 1 to 2235)
Cockeril,F.R. III, Kline,B.C. and Uhl,J.R.
Detection of isoniazid resistant strains of M. tuberculosis
Patent: US 5658733-A 1 19-AUG-1997;
Location/Qualifiers
                                                                                                                                                      9
                                                                                                                                  Length 2235;
                                                                                                                                                      Indels
                                                                                                                                Score 298.4; DB 6;
Pred. No. 1.8e-77;
); Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="unknown"
696 c 745 g
                                                                                                                                                    0
                                                                                                                                20.0%;
ilarity 62.4%;
Conservative
                                                                                                                                         al Similarity
502; Conserv
        Unknown
                                                                                                                                Query Match
Best Local S
Matches 502
                                                                                                                                                                                                                                                                                                                                                                                                                         1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1285
                                                                                                                                                                                                                 748
                                                                                                                                                                                                                                      336
                                                                                                                                                                                                                                                         808
                                                                                                                                                                                                                                                                                                   868
                                                                                                                                                                                                                                                                                                                                          928
                                                                                                                                                                                                                                                                                                                                                               416
                                                                                                                                                                                                                                                                                                                                                                                  988
                                                                                                                                                                                                                                                                                                                                                                                                     476
                                                                                                                                                                                                                                                                                                                                                                                                                                              536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            953
                                                                                 source
         ORGANISM
                                    AUTHORS
TITLE
JOURNAL
                                                                                                   BASE COUNT
                             REFERENCE
                                                                    FEATURES
                                                                                                             ORIGIN
SOURCE
                                                                                                                                                                                         셤
                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                      음
                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                       9
6
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                          ð
                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
```

535

475

987

415

ä

747 235 807 295 867 355 927 1164

655

775

892

927

```
953 AGATGGGCTTGGGCTGGAAGAGCTCGTATGGCACCGGAACCGGTAAGGACGCGATCACCA 1012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BCT 23-JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                   988 GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TICAGAAACCICTIGCCGCCACGCAGAIGGGACTIAITIAIGICAAICCIGAAGGCCCCG 1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1108 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                        595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                236 ACCCGATGGGTGCGGCGTTCGACTATGCCGGGAGGTCGCGACCATCGACGTTGACGCCC 295
                                                                                                                                                  928 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG 987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                896 ATGGCGCCG---GCCCGGCCGATCTGGTCGGCCCCGAACCCGAGGCTGCTCCGCTGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCAGGGACTGGGATGGAAAATGTGGTACAGGAAACGGCAAATATACCATCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             596 TGGGCTTCAAGACGTTCGGGTTCGGCTTCGGCCGGGTCGACCAGTGGGAGCCCGATGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG
                                                           GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                              868 ATGATGCCCGGGGAGGCGCCAGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (sites)
Cockerill,F.R., Uhl,J.R., Temesgen,Z., Zhang,Y., Stockman,L.,
Roberts,G.D., Williams,D.L. and Kline,B.C.
Rapid identification of a point mutation of the Mycobacterium
tuberculosis catalase-peroxidase (katG) gene associated with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           catalase (katG) gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacteria; Firmicutes; Actinobacteria; Actinobacteridae; Actinomycetales; Corynebacterineae; Mycobacteriaceae; Mycobacterium; Mycobacterium tuberculosis complex.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MTU06258 2311 bp DNA
Mycobacterium tuberculosis ATCC 25618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1013 GCGCCATCCAGGTCGTATGGACGA 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mycobacterium tuberculosis. Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       U06258.1 GI:1439530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complete cds.
U06258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1405
                                          748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 48
MTU06258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                    요
                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                셤
                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                   ò
                                          ö
                                                                                                                              ã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LKVLHONPAVADPMGAAFDYAAEVATIDVDALTRDIEEVWITSQPWWPADYGHYGPLF
TRAMHHAGTYR IHOGRGGGGGGGGFFF PLUNGWPDNASLDKARRLLWPYKKKYGKLS
WADLIYFAGNCALESWGFRYFGFGFGRYDQMEDDEYYWGRATWLGDBRYSGREDLEN
PLAAVQMGLIYVNPEGPNGNPDPMAAAVDIRETFRRAMMNDVETAALIVGGHTFGKTH
GAGPADLVORPEBEAAPLEGWGTGWRSSYGGTGFCATTGTGTTH
ILKGYEWBLYKSPAGAMQYTAKDGAGAGTIPDFFGGGGGRSPTWLAPDLSLRVDDIYER
ITRGYEWBLYKSPAGAMQYTAKDGAGAGTIPDFFGGGGGRSPTWLAPDLSLRVDDIYER
ITRGYEWBLYFSPAGAMQYTAKDGAGAGTIPDFFGGGGGRSPTWLAPDLSLRVDDIYEN
ITRRWLEHPEELADEFAKAWYKLIHRDMGPVARYLGPLVPKQTLLMQDPVPAVSHDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="catalase"
/protein_id="AAA1829.1"
/db_xref="GI:488454"
/translation="MPEQHPPITETTTGAASNGCPVVGHMKYPVEGGGNQDWWPNRLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TVLVGGLRVLGANYKRLPLGVFTEASESLTNDFFVNLLDMGITWEPSPADDGTYQGKD
GSGKVKWTGSRVDLVFGXNSELRALVEVYGADDAQPKFVQDFVAAWDKVWNLDRFDVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GEAEIASLKSQIRASGLTVSQLVSTAWAAASSFRGSDKRGGANGGRIRLQPQVGWEVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DPDGDLRKVI RTLEETQESFNSAAPGNIKVSFADLVVLGGGAAI EKAAKAAGHNITVP
FTPGRTDASQEQTDVESFAVLEPKADGFRNYLGKGNPLPAEYMLLDKANLLTLSAPEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ä
1405 AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                    WTU06269 12297 bp DNA linear BCT 20-MAY-1994
Mycobacterium tuberculosis L33308 catalase (katG) gene, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC 747
                                                                                                                                                                                                                                                                                                                                                                                                       Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Corynebacterineae; Mycobacteriaceae; Mycobacterium; Mycobacterium
                        Cockerill, F.R., Uhl, J.R., Temesgen, Z., Zhang, Y., Stockman, L., Roberts, G.D., Williams, D.L. and Kline, B.C.
Rapid Identification of a point mutation of the Mycobacterium tuberculosis catalase-peroxidase (katG) gene associated with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and Ma
Sw 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 298.4; DB 1; Length 2297;
Pred. No. 1.8e-77;
0; Mismatches 296; Indels 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
Submitted (07-FEB-1994) Bruce C. Kline, Mayo Clinic
Foundation, Blochemistry and Molecular Biology, 200
Rochester, MN 55905, USA

    .2297
    /organism="Mycobacterium tuberculosis"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /standard_name="catalase-peroxidase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              = = =
                                                                                  1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                          /db_xref="taxon:1773"
70. .2292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     754 g
                                                                                                                                                                                                                                                                                                                                                                 Mycobacterium tuberculosis.
                                                                                                                                                                                                                                                                                                                                                                                       Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /strain="L33308"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="katG"
70. .2292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                70. .2292
/gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                 tuberculosis complex.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           isoniazid resistance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 2297)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        718 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              502; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 502; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                              U06269
U06269.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kline, B.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        447
                                                                                                                          953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                              MT006269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
  à
                                                                                    ä
                                                                                                                          a
```

1404

```
/procein_id="AAA18234.1"
/db_xref="G1:488444"
/db_xref="G1:488444"
LKTLABSIALION="MPEQHPPITETTTGAASNGCPVVGHMKYPVEGGGNQDWWPNRLN
LKYLHQNPAYADPMGAREDYAARDYATIDYDALTRDIEEVMTTSQPWWPADYGHYGPLF
IRMAWHAAGTYRIHDGRGGAGGGMQRFAPLNSWPDNASLDKARRLLWPVKKYGKKLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MTU06264 2316 bp DNA linear BCT 20-MAY-1994
Mycobacterium tuberculosis L11150 catalase (katG) gene, complete
                                                                                                                                                        1284
  1108 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                            TTCAGAAACCTCTTGCCGCCACGCAGGATGGGACTTATTATGTCAATCCTGAAGGCCCCG 1224
                                                                                                                                                                                                                                1285 CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                      875
                                                                                                                                                                                                                                                                                                          1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                      1405 AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                          876 ATGCCCCC --- GCCCGGCCGATCTGGTCGGCCCCGAACCCGAGGCTGCTCCGCTGGAGC 932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mycobacterium tuberculosis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Corynebacterineae; Mycobacteriaceae; Mycobacterium
                                                                                                                                                      GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                      636 TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGCGTTACAGCGGTAAGCGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cockerill, F.R., Uhl, J.R., Temesgen, Z., Zhang, Y., Stockman, L., Roberts, G.D., Williams, D.L. and Kline, B.C. Rapid Identification of a point mutation of the Mycobacterium tuberculosis catalase-peroxidase (katG) gene associated with isoniazid resistance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 St.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
Submitted (07-FEB-1994) Bruce C. Kline, Mayo Clinic and Mayo
Foundation, Biochemistry and Molecular Biology, 200 SW 1 St.,
Rochester, MN 55905, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1. .2316
/organism-"Mycobacterium tuberculosis"
/strain="L11150"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /standard_name="catalase-peroxidase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      993 GCGCCATCGAGGTCGTATGGACGA 1016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:1773"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product-"catalase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mycobacterium tuberculosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="katG"
69. .2291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene-"katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tuberculosis complex.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 (bases 1 to 2316)
Kline, B.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:488443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              006264.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          006264
                                                                                                                                                      1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 49
MTU06264
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                셤
                                                                        ç
                                                                                                      g
                                                                                                                                                    ò
                                                                                                                                                                                        셤
                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                            용
                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IRWAWHAAGTYRIHDGRGGAGGMORFAPLNSWPDNASLDKARRLLWPVKKKYGKKLS
MADLIYFARATWGGDERSYGKKLS
PLAAVQMGIIYNDAEBRESTAGKEDLEN
GAGPADLVGPEPEAAPLEORGENGKORPOPMAAVDIRETFRWAMNDVETAALVGGHFEGKTH
GAGPADLVGPEPEAAPLEOMGLGWKSSYGTGTGKDAITSGIEVVWTNTPTKWNNSFLE
ILYGYEWELSKSPAGRAQYTAKDGAGAGTIPDPGGPGRSPTWLATDLSKUDDIYER
ILYGYEWELSHPEELADERAKAWYKLIHRDMGFYARYLGFLYPKQTLLWODPVPRSHDLY
GEAEIASLKSQIRASGILVSGLVSTAWAAASSFRGSDKRGGANGGRIRLAQPOVGWEVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DPDGDLRKVIRTLEEIQESFNSAAPGNIKVSFADLVVLGGGAAIEKAAKAGHNITVP
FYPGRPDSOSODYNESFAVLDEKARDGRNILGKORPLAERSYHLLDKRALLILSAPEM
FYLVGGLRVLGANYKRLPKGYFERSESLYNDFYNLLDMGTTWEPSPADDGTYQGKD
GSGKVKWTGSRVDLVFGSNSELRALVEVYGADDAQPKFVQDFVAAWDKVWNLDRFDVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LKVLHONPAVADPMGAAFDYAAEVATIDVDALTRDIEEVMTTSQPWWPADYGHYGPLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGATGACTGGGAGTCGGACTCGGACTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       276 TGACGCGGGACATCGAGGAAGTGATGACCACCTCGCAGCCGTGGTGGCCGCCGACTACG 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCACTACGGGCCCCTGTTATCCGGATGGCGTGGCACCCTGCCGGCACCTACCGCATCC 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACACGCCCCCCCCCCCCCCCCCCCCCCTATCCCCCCCTTAACACCCCC 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG 807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCCAGTCAAGAAAAATACG 987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACAACGCCAGCTTGGACAAGGCGCGCCGCTGCTGGCCGGTCAAGAAGAAGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     868 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                            Chaeses 57 to 2306)
Kline, B.C.
Blact Submission
Submitted (07-FEB-1994) Bruce C. Kline, Mayo Clinic and Mayo Poundation, Blochemistry and Molecular Biology, 200 SW 1 St., Rochester, MN 55905, USA
On Jul 23, 1996 this sequence version replaced gi:488431.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation-"MPEQHPPITETTTGAASNGCPVVGHMKYPVEGGGNODWW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 2311;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels

    . 2311
    /organism="Mycobacterium tuberculosis"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 298.4; DB 1;
Pred. No. 1.8e-77;
0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                              /function="catalase-peroxidase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      375
                                                                                                                                                                                                                                                                                                                                                                                                                        /protein_id="AAB04159.1"
/db_xref="GI:1439531"
                                                                                                                                                                                                                                                /db_xref="taxon:1773"
                                                                                                                                                                                                                              /strain="ATCC 25618"
                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                    /product-"catalase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  759 g
                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                      /gene="katG"
50. .2272
                                                                                                                                                                                                                                                                                                                        /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20.0%;
62.4%;
resistance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ö
                                                                                                                                                                                                                                                                                                        .2272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                Unpublished
isoniazid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           988
                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                      gene
                                    REFERENCE
                                                    AUTHORS
                                                                                                                                                  COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       å
```

```
ILYGYEWELTKSPAGAWOTTAKDGAGAGTIPDFIGGPGRSFTMLATDLSLRVDFIYER
TIRYBLEHPELADERAKWYKLIHRDMGPVARYCLAKUPGYTLMODPPRAYBDLV
GEAETASLKSQIRGSGLTVSGLVYSTAWAASSFRGSDKRGARGTLMODPPRAYBDLV
DPDGDLRKVIRTLEELQESFNSAAFGNIKVSFADLVULGGCAAIERAAKAAGHNITVP
PTPGRTDASCROTDVESFAVLEPKAGOFRNITGKGRPLPAETYLLDKALLILTSAPEM
TVLVGGLRVLGANYKRLPLGYFTFASESLTNDFFVNLLDMGTIWEPSPADDGTYGGK
GSGKVKWTGSRVDLVFGSNSELRALVEYGADDAOPKEVQDFVAAMDKVMNLDREDKR
GSGKVKWTGSRVDLVFGSNSELRALVEYGADDAOPKFVQDFVAAMDKVMNLDREDK
          PLAAVQMGLIYVNPEGPNGNPDPMAAAVDIRETFRRMAMNDVETAALIVGGHTFGKTH
GAGPADLVGPEPEAAPLEQMGLGWKSSYGTGTGKDAITSGIEVVWTNTPTKWDNSFLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WADLIVFAGNCALESMGFKTFGFGFGRVDQWEPDEVYWGKEATWLGDERYSGKRDLEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1225 GIGGAAAACCAGAICCICIGGCIICCGCGAAAGAIAICAGGGAAGCIIITICACGIAIGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGCCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     894
                                                                                                                                                                                                                                   747
                                                                                                                                                                                                                                                          294
                                                                                                                                                                                                                                                                                     807
                                                                                                                                                                                                                                                                                                            354
                                                                                                                                                                                                                                                                                                                                      867
                                                                                                                                                                                                                                                                                                                                                                414
                                                                                                                                                                                                                                                                                                                                                                                          927
                                                                                                                                                                                                                                                                                                                                                                                                                  474
                                                                                                                                                                                                                                                                                                                                                                                                                                           987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    534
                                                                                                                                                                                                                                                  CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGGCTTCAAGACGTTCGGGTTCGGCTTCGGCCGGGTCGACCAGTGGGAGCCCGATGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                     TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                      GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                          ATGATGCCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                         .
9
                                                                                                                                                                              Score 298.4; DB 1; Length 2316; Pred. No. 1.8e-77; 0; Mismatches 296; Indels '6;
                                                                                                                                          3 others
                                                                                                                                          378 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCCATCGAGGTCGTATGGACGA 1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                         760 9
                                                                                                                                                                            20.0%;
llarity 62.4%;
Conservative
                                                                                                                                          O
                                                                                                                                          726
                                                                                                                                                                                           Similarity
                                                                                                                                          ø
                                                                                                                                          449
                                                                                                                                                                                                      502;
                                                                                                                                                                               Query Match
Best Local S
Matches 502
                                                                                                                                                                                                                                 889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1012
                                                                                                                                                                                                                                                          235
                                                                                                                                                                                                                                                                                                            295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         895
                                                                                                                                                                                                                                                                                  748
                                                                                                                                                                                                                                                                                                                                                                355
                                                                                                                                                                                                                                                                                                                                                                                          868
                                                                                                                                                                                                                                                                                                                                                                                                                 415
                                                                                                                                                                                                                                                                                                                                                                                                                                           928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           952
                                                                                                                                                                                                                                                                                                                                      808
                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
/product-"catalase"
/protein_id="AAA1811."
/db_xref="C1:48436"
/translation="MPEOHPPITETTTGAASNGCPVVGHMKYPVEGGGNQDWMPNRLN
IKVHQNRPADPMGAAFDAAEVATIOVDALTRDIEEVWTTSOPWMPADYGHKGPLF
IRWAWHAAGTVRIDDGRGGAGGGMORFAPLNGWPDMSLDKARKLKSVKKKKKKKK
WADLIVPAGNCALESMGFKTFGFGFGRVDQWEPDEVYWGKRARLGDERYSGRENDLEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLAAVQMGLIYVNPEGPNGNPDPMAAAVDIRETFRRMAMNDVETAALIVGGHTFGKTH
GAGPADLVQFBPEAAPLEQMGLGWKSSYGTGTGKTAITSGIEVWTHYPKUNDSFLE
ILYGYFWELDFRSPARMQYTARDAGASYTIPDPFGGFGRSPTKLATDLSLRVUPIYER
ITRRWLEHPEELADEFAKAWYKLIHRDMGPVARYLGPLVPKQTLLWQDPVPAVSHDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GEAELASLKSQIRASGLTVSQLVSTAWAAASSFRGSDKRGGANGGRIRLOPOVGWEVN
DPDGDLRKVIRTLEELQESFNSAAPGNIKVSFADLVVLGGCAAIEKAAKAAGHNITVP
FTPGRTDASQEQTDVESFAVLEPKADGFRNYLGKGNPLPAEYILLDKANLLTLSAPEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TVLVGGLRVLGANYRRLPLGVFTEASESLTNDFFVNLLDMGITWEPSPADDGTYQGKD
GSGKVKWTGSRVDLVFGSNSELRALVEVYGADDAQPKFVQDFVAAWDKVWNLDRFDVR
                                        WTU06260 2326 bp DNA linear BCT 20-MAY-1994
Mycobacterium tuberculosis G6108 catalase (katG) gene, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             867
                                                                                                                                                                                              Mycobacterium tuberculosis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Corynebacterineae; Mycobacteriaceae; Mycobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              236 ACCCGATGGGTGCGGCGTTCGACTATGCCGGGAGGTCGCGACCATCGACGTTGACGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCTCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           808 GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                          Roberts, G.D., Williams, D.L. and Kline, B.C.
Rapid identification of a point mutation of the Mycobacterium
tuberculosis catalase-peroxidase (katG) gene associated with
isoniazid resistance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (07-FEB-1994) Bruce C. Kline, Mayo Clinic and Mayo Foundation, Blochemistry and Molecular Biology, 200 SW 1 St., Rochester, MN 55905, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                      Zhang, Y.,

    .2326
/organism="Mycobacterium tuberculosis"
/strain="G6108"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /function="catalase-peroxidase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 298.4; DB
Pred. No. 1.8e-77
0; Mismatches 29
                                                                                                                                                                                                                                                                                    1 (sites)
Cockerill, F.R., Uhl, J.R., Temesgen, Z.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:1773"
70. .2292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ь
                                                                                                                                                                          Mycobacterium tuberculosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="katG"
70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 20.0%;
Best Local Similarity 62.4%;
Matches 502; Conservative
                                                                                                                                                                                                                                                             tuberculosis complex
                                                                                                                                                                                                                                                                                                                                                                                                                                    2 (bases 1 to 2326)
Kline, B.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              728 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . 2292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished
                                                                                                                                U06260.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        748
                                                                                                                                  VERSION
KEYWORDS
SOURCE
ORGANISM
RESULT 50
MTU06260
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
```

```
1108 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                         1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                     1225 GIGGAAAACCAGAICCICIGGCIICCGCGAAAGAIAICAGGGAAGCIIITICACGIAIGG 1284
                                                                                                                                                                                                                                                                                                                                                 CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                           1345 ATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                       1405 AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                        988 GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                      715
                                                                                                                                                                                                                                                                                                                            835
                                                                                                                                                                                                                                                                                                                                                                        895
                                                                                                                                     655
987
                                                                                                                                                                                                                                                                        927
                                                                            928 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                        776 ACGCCAACCCCCATGCCCGCGCGCGTTCGCGAGACGTTCGGCGCGTTGG
                                                                                                                                                                                                                                                                                                                                                              868 ATGATGGCCGGGGAGCGCCAGTGGTGGTCACCAACGTTTTGAACGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCCATCGAGGTCGTATGGACGA 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                    959
                                                                                                                                                                                                                                                                                                                                                 1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1465
                                                     윱
                                                                                                 셤
                                                                                                                                           셤
                                                                                                                                                                                  a
                                                                                                                                                                                                             à
                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                            ò
                                                                                                                      ò
                                                                                                                                                                  à
```

18, 2003, 04:52:44 Search completed: June : Job time : 2697.55 secs

THIS PAGE BLANK (USPTO)

Perfect score: Sequence: Scoring table:

Total number Minimum DB Maximum DB

Database

Searched:

٠

OM nucleic

Run on:

```
Sequence 463,
Sequence 352,
Sequence 352,
Sequence 463,
Sequence 463,
Sequence 463,
    Sequence 2
Sequence 2
Sequence 3
Sequence 4
Sequence 5
Sequence 5
Sequence 5
Sequence 5
Sequence 5
Sequence 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence Seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 3
Sequence 3
Sequence 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 4
Sequence 4
Sequence 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence description of the sequence of the se
US-09-764-847-1415
US-09-2154-1414
US-09-2154-1414
US-09-2154-1414
US-09-2154-1414
US-09-925-29551
US-09-918-995-29551
US-09-918-995-29552
US-09-918-995-29552
US-09-918-995-29552
US-09-918-995-29552
US-09-990-444-3552
US-09-990-444-3552
US-09-990-436-352
US-09-990-437-352
US-09-990-437-352
US-09-990-437-352
US-09-990-437-352
US-09-990-437-352
US-09-990-437-352
US-09-990-440-352
US-09-990-420-463
US-09-990-420-463
US-09-990-420-463
US-09-990-420-453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -09-990-439-352
  000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 7, Appli
Sequence 5, Appli
Sequence 332, App
Sequence 332, App
Sequence 332, App
Sequence 8989, Ap
Sequence 8989, Ap
Sequence 655, App
Sequence 510, App
Sequence 522, App
Sequence 522, App
Sequence 147, App
Sequence 147, App
Sequence 574, App
                                                                                                                                                                                (without alignments)
5804.490 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                 ctgcagtccggagatgaaag............1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Description
                                                                                                                                                         Search time 376.433 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . (cgn2_6/ptodata/1/pubpna/USO7_PUBCOMB.seq:*
. (cgn2_6/ptodata/1/pubpna/USO7_NEW_PUB.seq:*
. (cgn2_6/ptodata/1/pubpna/USO6_NEW_PUB.seq:*
. (cgn2_6/ptodata/1/pubpna/USO6_PUBCOMB.seq:*
. (cgn2_6/ptodata/1/pubpna/USO7_NEW_PUB.seq:*
. (cgn2_6/ptodata/1/pubpna/USO8_NEW_PUB.seq:*
. (cgn2_6/ptodata/1/pubpna/USO8_NEW_PUB.seq:*
. (cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*
                     GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-084-089-5

US-10-123-155-254

US-10-134-644-332

US-10-184-644-332

US-09-815-242-2188

US-09-815-242-8989

US-09-815-242-832

US-09-815-242-832

US-09-815-242-832

US-09-84-761-8918

US-09-84-761-3110

US-10-184-644-592

US-10-184-644-592

US-10-184-644-592

US-10-184-644-592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-810-936-147

US-09-429-755-147

US-10-184-644-574

US-10-184-634-1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                   hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                           1042519 segs, 733713590 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 150 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Published_Applications_NA:*
                                                                                                                 nucleic search, using sw model
                                                                                                                                                           ٠.
                                                                                                                                                           04:53:09
                                                                                                                                                                                                                                                                                                                                            IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq length: 0
seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                  US-09-674-277-1
1489
                                                                                                                                                           18, 2003,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      June
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
```

00

Result

0 0 0

O

```
ATACGCCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGA 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGGCCCGGTGGAAAACCAGATCCTCGCTTCCGCGAAAGATATCAGGGAAGCTTTTTC 1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              683 ATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                          TIATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1043 ATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAATC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTATGTCAATCCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                    ;
9
                                                                                                                                                                                                                                                                                                                                                 Length 2238;
                                                                                                                                                                                                                                                                                                                                         Score 357.6; DB 10; Length
Pred. No. 6.4e-110;
0; Mismatches 264; Indels
         FILE REFERENCE: DIVERIIOO-4
CURRENT APPLICATION NUMBER: US/09/884,889
CURRENT FILING DATE: 2001-06-19
PRIOR APPLICATION NUMBER: US 09/412,347
PRIOR FILING DATE: 1999-10-05
PRIOR FILING DATE: 1997-10-16
PRIOR FILING DATE: 1997-10-16
PRIOR FILING DATE: 1996-07-03
PRIOR FILING DATE: 1996-07-03
SOFTWARE: PATENT NOW STEEN
SOFTWARE: PATENT NOS: 8
SOFTWARE: PATENT NOS: 8
SOFTWARE: PATENT NOS: 8
SOFTWARE: PATENT NOS: 8
                                                                                                                                                                                                                                                             ; TYPE: DNA
; ORGANISM: Microscilla furvescens
US-09-884-889-7
                                                                                                                                                                                                                                                                                                                                         24.0%;
66.7%;
                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 542; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1217
                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>۾</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                    Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
Sequence 463, p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 463,
Sequence 463,
Sequence 463,
Sequence 463,
Sequence 463,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 463,
Sequence 463,
Sequence 463,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 463,
           Sequence Seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 4
Sequence 4
Sequence 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 4
 US-09-989-328-352
US-09-993-583-352
US-10-121-043-463
US-10-121-043-463
US-10-123-215-463
US-10-123-910-463
US-10-123-910-463
US-10-123-910-463
US-10-123-910-463
US-10-123-910-463
US-10-123-910-463
US-10-123-910-463
US-10-124-913-463
US-10-124-913-463
US-10-127-939A-463
US-10-127-93-63-463
US-10-147-515-463
US-10-147-516-463
US-10-127-93-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-127-849A-463
US-10-127-850A-463
   935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256

935256
```

527

467

982

922

1156

647

1277 168

ò 셤 δ g ò 셤

1337 TAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACC 1396

828 1397 888

827

TGTGGAGGAGCAGGACTGGGATGGAAAATAAATGTGGGTACAGGAAACGCCAAATATAC 1456

947

Sequence 7, Application US/09884889 Patent No. US20020102680A1 GENERAL INFORMATION: APPLICANT: DIVERSA CORPORATION APPLICANT: ROBERTSON, Dan APPLICANT: SANTAL, INDEALI SAPPLICANT: ADHIKARI, ROBERT TITLE OF INVENTION: CATALASES US-09-884-889-7

m

ð 셤

```
1320
                                                                                                                                1321 GAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAG 1380
                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      950 AGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGA 1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATT 1069
                                                                                                877
                                                                                                                                                   883
     890 TGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAA 949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         935 ACCCAAAAGCCTCTGACGTTGAAAACCAGGGCTTAGGTTGGGGCAACCCCAACATGCAGG 994
                                                            1261 TCAGGGAAGCTTTTTCACGTATGCCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGG
                                                                                 APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
FITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P333001C30
CURRENT APPLICATION NUMBER: US/10/123,155
CURRENT FILING DATE: 2002-04-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        830 TCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 567;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     See Palm or File Wrapper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match 2.6%; Score 38.6; DB 9;
Best Local Similarity 9.2%; Pred. No. 0.047;
Matches 41; Conservative 134; Mismatches 270;
                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 254, Application US/10123155
Publication No. US20030068794A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Smith, Victoria
Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Watanabe, Colin K
Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Baker, Kevin P. APPLICANT: Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Desnoyers, Luc
Filvaroff, Ellen
Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sherwood, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Prior Application removed -
NUMBER OF SEQ ID NOS: 550
SEQ ID NO 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Homo Saplen
US-10-123-155-254
                                                                                            818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT
                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                            à
                                                                                           음
                                                                                                                               å
                                                                                                                                                                 셤
                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1201 ITTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATA 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTG 1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGG 1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --AACCGGGATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTA 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAA 981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGGCCGGACAACGTCAGCTGGATAAAGCGCGCCGTCTGCTGTGGCCGATCAAGAAGA 517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGACGTGAACAAGCCAGAGACCATGGAAAACCCGCTGGCGGCTGTCCAAATGGGTCTGA 757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     742 AGGCTCTGAAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGG 801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             802 ATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACA 861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACA 921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    682 AATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCTGG----TATACTGGGGCCTGACAACAAGCCTCTTGCAGAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 224.6; DB 10; Length
Pred. No. 9.2e-65;
0; Mismatches 329; Indels
APPLICANT: BIVERSA CORPORATION
APPLICANT: BANYAL, Indralit
APPLICANT: BANYAL, Indralit
APPLICANT: ADHIKARI, ROBERT
TITLE OF INVENTION: CATALASES
FILE REFERENCE: DIVERILIOO 4.
CURRENT APPLICATION NUMBER: US/09/884,889
CURRENT FILING DATE: 2001.06-19
PRIOR APPLICATION NUMBER: US 09/412,347
PRIOR APPLICATION NUMBER: US 08/51,844
PRIOR FILING DATE: 1997-10-16
PRIOR FILING DATE: 1997-10-16
PRIOR FILING DATE: 1997-10-16
PRIOR FILING DATE: 1996-07-03
NUMBER OF SEQ ID NOS: 8
SOFTWARE: PATENTIN VETSION 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TYPE: DNA
; ORGANISM: Alcaligenes (Deleya) aquamarinus
US-09-884-889-5
                                                                                                                             Sequence 5, Application US/09884889 Patent No. US20020102680A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 15.1%;
Best Local Similarity 57.4%;
Matches 476; Conservative
                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 982
                                                                                            RESULT 2
```

ò g à g g

ò g õ

셤 õ 8 ò

ò

g

용

à g ò

õ

```
Wall, Daniel
Trawick, John D.
Carr, Grant J.
Yamamoto, Robert T.
                                               Application US/10
                                                                                                                                                                                                                                   Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ohlsen, Kari L.
Zyskind, Judith W.
                                                                                                                                                                  Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.3%
Best Local Similarity 20.2%
Matches 53; Conservative
                                                                                                                                                                                                  Pan, James
Smith, Victoria
                                                                                                                                                                                                                                                                    Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT
ORGANISM: Homo Saplen
                                               Sequence 332, Appropriate No. 10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JS-09-815-242-2188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-184-634-332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                 APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                 1070 TGCTGGCGGAAGAAGAAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCCTGACAAA 1129
                                                                                                                                                                 1190 GAIGGGACTIAITTAIGICAAICCIGAAGGCCCCGGIGGAAAACCAGAICCICIGGCIIC 1249
                                                                                                  1130 GCCTCTTGCAGATAACCGGGATAAAAACGGGGAAACTTCAGAAACCTCTTGCCGCCACGCA 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1283 GCCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGC 1342
   HIIKAHAKTWHSYNTTWRSKQQGLVGISLNCDWGEPVDISNPKDLEAAERYLQFCLGWFA 291
                                                                                                                               352 RNYPSRQGPSYQNDRDLIELVDPNWPDLGSKWLYSVPWGFRRLLNFAQTQYGYGDPPIYVME 411
                                                                                                                                                                                              412 NGASQKFHCTQLCDEWRIQYLKGYINEMLKAIKDGANIKGYTSWSLLDKFEWEKGYSDRY 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1223 CGGIGGAAAACCAGAICCICIGGCIICCGCGAAAGAIAICAGGGAAGCIIITICACGIAI 1282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1343 ACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGA 1402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1403 GGAGCAGGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCAC 1462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MGRDGATGPSGPQGPPGVKGEAGLOGPQGAPGKQCATGTPGPQGEKGSKGDGGLIGPKGE 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 : | | : | | : | | : | | 243 TGTKGEKGDLGLPGSKGDRGKGDAGYMGPPGAQGSKGDFGRPGPPGLAGFPGAKGDQGQ 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  303 PGLQGVPGPPGAVGHPGAKGEPGSAGSPGRAGLPGSPGSPGATGLKGSKGDTGLQGQQGR 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    422
                                                                292 NPIYAGDYPQVMKDYIGRKSAEQGLEMSRLPVFSLQEKSYIKGTSDFLGLGHFTTRYITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC FITLE OF INVENTION: ACIDS ENCODING THE SAME FILLS ERRERNCE: P3430HTC227 CURRENT APPLICATION NUMBER: US/10/184,644 CURRENT FILING DATE: 2002-06-28 Prior Application removed - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 612 SEQ ID NO 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 520;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.3%; Score 34.6; DB 9; 1
20.2%; Pred. No. 1;
tive 58; Mismatches 152;
                                                                                                                                                                                                                                 1250 CGCGAAAGATATCAGGGAAGCTTTT 1274
                                                                                                                                                                                                                                                        GFYYVEFNDRNKPRYPKASVQYYKK 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1463 CAGTGGCCTGGAAGGAGCCTGGT 1485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SVRIVGSSNRGRAEVYYSGTWGT 445
                                                                                                                                                                                                                                                                                                                                                   Sequence 332, Application US/10184644
Publication No. US20030044930A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                    Desnoyers, Luc
Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.3%
Best Local Similarity 20.2%
Matches 53; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                         Chen, Jian
                                                                                                                                                                                                                                                                                                                                   US-10-184-644-332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; ORGANISM: Hom
US-10-184-644-332
                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT
셤
                                                                                                                               셤
                                 ò
                                                           g
                                                                                              ò
                                                                                                                                                                 à
                                                                                                                                                                                              셤
                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
```

```
1223 CGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTAT 1282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1283 GGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGCATACATTTGGTAAAGC 1342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1343 ACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGA 1402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1403 GGAGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCAC 1462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             243 TGTKGEKGDLGLPGSKGDRGMKGDAGVMGPPGAQGSKGDFGRPGFPGLAGFPGAKGDQGQ 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        303 PGLOGVPGPPGAVGHPGAKGEPGSAGSPGRAGLPGSPGSPGATGLKGSKGDTGLQGQGR 362
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC FITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3430RTC217 CURRENT APPLICATION NUMBER: US/10/184,634 CURRENT FILING DATE: 2002-06-28 FILE Wrapper or Palm NUMBER OF SEQ ID NOS: 612 SEQ ID NO 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        183 MGRDGATGPSGPQGPPGVKGEAGLOGPQGAPGKQGATGTPGPQGEKGSKGDGGLIGPKGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                     Length 520;
                                                                                                                                                                                                                                                                                                                                                                                                         ; Pred. No. 1;
58; Mismatches 152; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes in
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
                                                                                                                                                                                                                                                                                                                                                                                  DB 9;
                                                                                                                                                                                                                                                                                                                                                                            20.2%; Score 34.6;
20.2%; Pred. No. 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1463 CAGTGGCCTGGAAGGAGCCTGGT 1485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SVRIVGSSNRGRAEVYYSGTWGT 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 2188, Application US/09815242

Patent No. US20020061569A1

GENERAL INFORMATION:

APPLICANT: Haselbeck, Robert

APPLICANT: Ohlsen, Kari L.
```

ö

Gaps

ö

Indels

Length 927;

542

```
543 AAAAAAACTCTTCCTGTTCTGATTCTTCTGGCGCTATCGGGGGGGCTTTTCTACCGCTGTA 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         655 ATAATTTTTTAATTTATCTGGTTCTTCAGTAGCACTTGTCACGATTGAAAACTATACG 596
                                                                                                                                                                                                                                                                                                                                                      483 AAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATA
                                                                                                                                                                                                                                                                                                                                                                                                           715 AAAGTTCAAATGCTTCTGCATCTTGGAAATTGCCTTTTTTATCACGCAACTCATCAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                483 AAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 603 GCCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAA 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      595 TCGCCTCTAGTACAAATTGATAACCAAATGTATCATCGATAAGTCCTTCGTTTAA 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Identification of Essential Genes in TITLE OF INVENTION: Prokaryotes FILE REFERENCE: ELTTRA.011A CURRENT APPLICATION INDERS: US/09/815,242 CURRENT APPLICATION NUMBER: US/09/815,242 CURRENT FILING DATE: 2001-03-21 PRIOR APPLICATION NUMBER: 60/191,078 PRIOR FILING DATE: 2000-03-21 PRIOR FILING DATE: 2000-05-23 PRIOR FILING DATE: 2000-05-26 PRIOR FILING DATE: 2000-05-26 PRIOR PRIOR PRIOR DATE: 2000-10-23 PRIOR FILING DATE: 2000-10-23 PRIOR FILING DATE: 2000-11-27 PRIOR FILING DATE: 2000-11-27 PRIOR FILING DATE: 2000-11-27 PRIOR FILING DATE: 2000-11-27 PRIOR FILING DATE: 2000-12-22 PRIOR FILING DATE: 2000-12-22 PRIOR FILING DATE: 2000-12-22 PRIOR FILING DATE: 2000-12-22 PRIOR FILING DATE: 2001-02-16 PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88;
                                                                                                                                                                                                                                                                                                 88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 10;
                                                                                                                                                                                                                                            DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 2.3%; Score 34.2; Di
Best Local Similarity 49.7%; Pred. No. 2.5;
Matches 87; Conservative 0; Mismatches
                                                                                                                                                                                                                                      Query Match 2.3%; Score 34.2; D
Best Local Similarity 49.7%; Pred. No. 2.1;
Matches 87; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 14110
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 4832, Application US/09815242 Patent No. US20020061569A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari L.
APPLICANT: Zyskind, Judith W.
APPLICANT: Wall, Daniel
APPLICANT: Travick, John D.
APPLICANT: Carr, Grant J.
APPLICANT: Yamamoto, Robert T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; ORGANISM: Staphylococcus aureus US-09-815-242-4832
                                         TYPE: DNA ORGANISM: Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Yamamoto, Rob APPLICANT: Xu, H. Howard
                                                                                                                   ; NAME_KEY: CDS
; LOCATION: (1)...(927)
US-09-815-242-8989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-815-242-4832/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ ID NO 4832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 1164
           LENGTH: 927
                                                                                                 FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                         ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         483 AAAGTIGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATA 542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90 ATAATTTTTTTAATTTAATCTGGTTCTTCAGTAGCACTTGTCACGATTGAAAAACTATACG 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30 AAAGTICAAAIGCTICIGCAICIIGGAAAITGCCTITITIAICACGCAACICAICIAAIA 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      603 GCCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAA 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         150 TCGCCTCTAGTACAAATTGATAACCAAATGTATCATCGATAAGTCCTTCGTTTAA 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 893;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 2.3%; Score 34.2; DB 10; Length Best Local Similarity 49.7%; Pred. No. 2; Matches 87; Conservative 0; Mismatches 88; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes in
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA. 011A
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2001-12-2
PRIOR FILING DATE: 2001-22
PRIOR FILING DATE: 2001-22
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
NUMBER OF SEQ ID NOS: 14110
SEQ ID NO 2188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 14110
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 8989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR FILING DATE: 2000-03-21
PRIOR PILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR PLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/243,625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 8989, Application US/09815242
Patent No. US20020061569A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/269,308 PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: 60/257,931 PRIOR FILING DATE: 2000-12-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TYPE: DNA
; ORGANISM: Staphylococcus aureus
US-09-815-242-2188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Trawick, John D.
APPLICANT: Carr, Grant J.
APPLICANT: Yamamoto, Robert T.
ADDITANE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Ohlsen, Kari L.
APPLICANT: Syskind, Judith W.
PPLICANT: Wall, Daniel
APPLICANT: Trawick, John D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 2000-11-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-815-242-8989/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

ö

Gaps

ö

Indels

Length 1164;

```
õ
                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                          g
961 ATAATTTTTTAATTTATCTGGTTCTTCAGTAGCACTTGTCACGATTGAAAAACTATACG 902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         483 AAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATA 542
                                                                                                                                                                                             APPLICANT: Charles Kunsch
TITLE OF INVENTION: Staphylococcus aureus Polynucleotides and Sequences
NUMBER OF SEQUENCES: 5255
CORRESPONDENCE ADDRESS:
ADDRESSEE: Human General
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  543 AAAAAACTCTTCCTGTTCTGATTCTTCTGGCGCGTATCGGGGGGGCTTTTCTACCGCTGTA 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             465 ATAATTTTTTAATTTATCTGGTTCTTCAGTAGCACTTGTCACGATTGAAAACTATACG 524
                                                                 603 GCCGCTGATAAAAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAA 657
                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         525 TCGCCTCTAGTACAAATTGATAACCAAATGTATCATCGATAAGTCCTTCGTTTAA 579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGCTGATAAAAAAAAACTCAAAATTTCTACTATCCAGAAACACTGGATTTAA 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 2554;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                              COMPOUER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.4Mb storage
COMPUTER: HP Vectra 486/33
OPERATING SYSTEM: MSDOS version 6.2
SOFTWATER: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/781,986A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 34.2; DB
Pred. No. 4.3;
0; Mismatches
                                                                                                                                                                                                                                                                                                                 E: Human Genome Sciences, Inc. 9410 Key West Avenue
                                                                                                                                                                     US-08-781-986A-565

Sequence 565, Application US/08781986A

Publication No. US20030054436A1

GRERAL INFORMATION:
APPLICANT: Charles Kunsch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY AGENT INFORMATION:
NAME: Benson, Bob
REGISTRATION NUMBER: 90.446
REFERENCE/DOCKEY NUMBER: PB248PP
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (301) 309-8504
TELEFAX: (301) 309-8512
INFORMATION FOR SEQ ID NO: 565:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : 2554 base pairs
nucleic acid
EDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best_Local Similarity 49.7
Matches 87; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                    Maryland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                  Rockville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                   20850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-781-986A-565
                                                                                                                                                                                                                                                                                                                                                CITY: ROC
STATE: Ma
COUNTRY:
                                                                                                                                                                                                                                                                                                                              STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                      RESULT 9
                              셤
                                                                 à
                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
```

US-09-764-891-8918/C Sequence 8918, Application US/09764891 Publication No. US20030077808A1 GENERAL INFORMATION:

```
NUCLEIC ACID PROBES USEFUL FO
                                                                                                                                                                                                                                                                                                                                                                                              662 ICTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAG 721
                                                                                                                                                                                                                                                                                                                                                                                                                                          573 TCTTGTGTTGCTCAGGCTGGTCTCAAACTCCTGCTAGCCTGGTTGATTTTTGAGCCACTAA 514
                                                                                                                                                                                                                                                                                                                                                                 Gaps
TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies FILE REFERENCE: PC006
CURRENT APPLICATION NUMBER: US/09/764,891
CURRENT FILING DATE: 2001-01-17
Prior application data removed - consult PALM or file wrapper NUMBER OF SEQ ID NOS: 10231
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 8918
LENGTH: 636
                                                                                                                                                                                                                                                                                                          Score 34; DB 9; Length 636;
Pred. No. 1.9;
0; Mismatches 40; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Penn, Sharron G.
APPLICANT: Rank, David R.
APPLICANT: Hanzel, David R.
APPLICANT: Chen, Wensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC
TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        722 ATTICAACAGCIGGATAIGGAGGCICIGAAAAAAAAA 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          513 GTAACAGCTTAACATGAAGTATATGAAGTCAGCTA 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILE REFERENCE: Aeomica-X-1
CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 2000-09-27
APPLICATION NUMBER: PCT/US01/00666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00664
FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: PCI/US01/00669
FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: PCT/US01/00665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             URRENT FILING DATE: 2001-05-23
PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR FILING DATE: 2000-02-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: PCT/US01/00663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: PCT/US01/00670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATION NUMBER: US 60/207,456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: PCT/US01/00662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: PCT/US01/00661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 2000-05-26
APPLICATION NUMBER: US 09/632,366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US 60/236,359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 2001-01-30
APPLICATION NUMBER: US 60/234,687
FILING DATE: 2000-09-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 3110, Application US/09864761
Patent No. US20020048763A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 2000-08-03
APPLICATION NUMBER: GB 24263.6
FILING DATE: 2000-10-04
                                                                                                                                                                                                                                                                                                  Query Match 2.3%;
Best Local Similarity 59.2%;
Matches 58; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 2001-01-30
                                                                                                                                                                                                                                 ; ORGANISM: Homo sapiens
US-09-764-891-8918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -09-864-761-3110/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
```

```
1101 GACCTGGTATACTGGGGCCTGACAACAAGCCTCTTGCAGATAAACGGGATAAAAACGGG 1160
                                                                                                                                                                                                                                                                                                                          981 AAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTT 1040
                                                                                                                                                                                                                                                                                                                                                                                                                       1041 GAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCG 1100
                                                                   129 DDFHNYNVEELLGFLELYNSAATDSEKAVEKTLQDMEKNPELSKEREPEPEPVEANSEES 188
                                                                                                                                                                                                                          921 AGCIGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCCAGTCAAGAAA 980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  369 PGIKNDDKNILTIWGDTIFSIVTGGEETRDTMDLESSSSEEEKEDDDDALVPDSKOGKPO 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  681 GAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATG 740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69 DPVYVYYKLARGWPEVWAGSVGRIFGYFPKDLIQVVHEYTKEELQVPTDETDFVCFDGGR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC 860
                                                                                                                                                                                                                                                                                                                                                      741 GAGGCTCTGAAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCG
                                801 GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC
                                                                                                                             861 AGGACATATGATGGCCGGGGGGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAAC
                                                                                                                                                                             189 DSVFSENTEDLØEQFTTØKHHSHANSQANHAQGEQASFESFEEMLØDKLKVPESENNKTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430NTCE: P3430NTCE: P3420NTCE: UNRERNT APPLICATION NUMBER: US/10/184,634
CURRENT FILING DATE: 2002-06-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9 VWLLVLRLPWRVPGQLDPSTGRRFSEHKLCADDECSMMYRGEALEDFTGPDCRFVNFKKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 9; Length 499;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Prior Application removed - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 2.3%; Score 33.8; DB 9;
Best Local Similarity 6.6%; Pred. No. 1.8;
Matches 32; Conservative 156; Mismatches 298;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 592, Application US/10 Publication No. US20030068684A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Desnoyers, Luc
Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Smith, Victoria
Watanabe, Colin R
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1161 AAACTT 1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; ORGANISM: Homo Sapien
US-10-184-634-592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 489 QEGFKT 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                           g
                                                                                                                             å
                                                                                                                                                                        g
                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1290 GATGATGAGGAGACTGTGGCCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGT 1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        219 GCTGCTGATGTTAAAGCAGGTGTTGATGCTGATGCAGGTACCGATGCTGAAGCAGGTGTT 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       681 GAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACAGATTTCAACAGCTGGATATG 740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    741 GAGGCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCG 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69 DPVYVYYKILARGWPEVWAGSVGRIFGYFPKDLIQVVHEYTKEELQVPTDETDFVCFDGGR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: GOGOWSKI, Paul J.
APPLICANT: GOGOWSKI, Paul J.
APPLICANT: Gurney, Austin L.
APPLICANT: Ban, James
APPLICANT: Smith, Victoria
APPLICANT: Matanabe, Colin K.
APPLICANT: Watanabe, Colin K.
APPLICANT: APPLICANT: ACTOR SERETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND CURRIC TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REPERENCE: 93430R10277
CURRENT APPLICATION NUMBER: US/10/184,644
CURRENT FILING DATE: 2002-06-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9 VWLLVLRLPWRVPGQLDPSTGRRFSEHKLCADDECSMMYRGEALEDFTGPDCRFVNFKKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1350 GCAGCGTCTCCTGAAAATGTATTGGCGCCAGGGCCTGATGGTGCACCTG 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              159 GATGCAGGTGCTGAAAAGGTGTTGGTGCAGGTGCAGATGCTGATGCTG 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 457;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 9; Length 499
                                                                                                                                                                                                                                         FEATURE:

OTHER INFORMATION: MAP TO AL035457.11

OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 0.85

OTHER INFORMATION: EXPRESSED IN BRAIN, SIGNAL = 1.1

OTHER INFORMATION: EXPRESSED IN BAT44, SIGNAL = 1

OTHER INFORMATION: EXPRESSED IN FIT44, SIGNAL = 0.93

OTHER INFORMATION: EXPRESSED IN FITAL LIVER, SIGNAL = 0.95

US-09-864-761-3110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ilarity 6.6%; Pred. No. 1.8;
Conservative 156; Mismatches 298; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 592
LENGTH: 499
PRIOR APPLICATION NUMBER: US 09/608,408
PRIOR FILING DATE: 2000-06-30
PRIOR FILING DATE: 2001-01-29
NUMBER OF SEQ ID NOS: 49117
SOFTWARE: Annomax Sequence Listing Engine Vers. 1.1
SEQ ID NO 3110
LENGTH: 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 33.8; DE Pred. No. 1.7; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.3%; Score 33.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Application US/10184644
o. US20030044930A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ch 2.3%;
1 Similarity 56.9%;
62; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                 TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Homo Sapien
US-10-184-644-592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity
Matches 32; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 592, Application No. US2 GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S.
Matches 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
```

ö

Gaps

ö

Indels

800

```
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                           APPLICANT
                                                                                                                                             APPLICANT
                                                                                                                                                                                                                                                  APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                               981. AAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTT 1040
                                                                                                                                                                                                                                                    1041 GAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCG 1100
                                                                                                                                                                                                                                                                                                                          1101 GACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAAACGGGATAAAAGGG 1160
                                  861 AGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAAC 920
                                                                                                        921 AGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAA 980
129 DDFHNYNVEELLGFLELYNSAATDSEKAVEKTLQDMEKNPELSKEREPEPEPVEANSEES 188
                                                                                                                                 249 NSSQVSNEQDKIDAYKLIKKEWTLDLKTKRGSTADALVSDDETTRLVTSLEDDFDEELDT 308
                                                                                                                                                                                                        309 EYYAVGKEDEENQEDFDELPLLTFTDGEDMKTPAKSGVEKYPTDKEQNSNEEDKVQLTVP 368
                                                                                                                                                                                                                                                                              369 PGIKNDDKNILTTWGDTIFSIVTGGEETRDTWDLESSSSEEEREDDDDALVPDSKQGKPQ 428
                                                                                                                                                                                                                                                                                                                                                 1316 CGCGGGAGGCCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGG 1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   427 cGGTGGAGGCCAGTGAGATGGCACACACACGGGCAGCTGGTCNTGCAGAACGGCTTTG 368
                                                             189 DSVFSENTEDLOEQFTTOKHHSHANSOANHAQGEQASFESFEEMLQDKLKVPESENNKTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 579;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Deng, Ta
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY
TITLE OF INVENTION: AND DIAGNOSIS OF BREAST CANCER
FILE REFERENCE: 210121.419C12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1376 CGCAGGCCTGATGGTGCACCTGTGGAGGAGCAGGACTGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           367 CTGACATCATCACCGTGTACCAGCAGAAGGTGGAGGACGTGG 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 2.3%; Score 33.8; DB
Best Local Similarity 57.8%; Pred. No. 2;
Matches 59; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/924,400
CURRENT FILING DATE: 2001-08-07
NUMBER OF SEQ ID NOS: 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 147, Application US/09924400
Patent No. US20020165371A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; NAME/KEY: misc_feature; LCATION: 383, 453, 465, 501; CTHER INFORMATION: n = A,T,C or GUS-09-924-400-147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Skeiky, Yasir A. W.
Harlocker, Susan L.
Day, Craig H.
Li, Samuel X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Frudakis, Tony N. APPLICANT: Reed, Steven G. APPLICANT: Smith, John M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Misher, Lynda E.
Dillon, Davin C.
Retter, Marc W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wang, Aljun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                               1161 AAACTT 1166
                                                                                                                                                                                                                                                                                                                                                                                                                                   489 QEGFKT 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JS-09-924-400-147/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ ID NO 147
LENGTH: 579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
                                  ð
                                                                g
                                                                                                      ŏ
                                                                                                                                           g
                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                    ä
                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
```

```
1316 CGCGGGAGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGG 1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 579;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE TITLE OF INVENTION: TREATMENT AND DIAGNOSIS OF BREAST CANCER FILE REFERENCE: 210121.419C6
                                                                                                                                                                                                                             APPLICANT: Harlocker, Susan L.
APPLICANT: Day, Craig H.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: THERAPY AND DIAGNOSIS OF BREAST CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1376 CGCAGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 367 CTGACATCATCACCGTGTACCAGCAGAAGGTGGAGGACGTGG 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13.3%; Score 33.8; Score 33.8; Similarity 57.8%; Pred. No. 2; 59; Conservative 0; Mismatche
                                                                                                                                                                                                                                                                                                            FILE REFERENCE: 210121.419611
CURRENT APPLICATION NUMBER: US/09/810,936
CURRENT FILING DATE: 2001-03-16
                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 334
SOFTWARE: FastSEQ for Windows Version 3.0
LENGTH: 579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/09/429,755A CURRENT FILING DATE: 1999-10-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FastSEQ for Windows Version 3.0
Sequence 147, Application US/09810936
Patent No. US20020068285A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 147, Application US/09429755A
Patent No. US20020111467A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature

LCCATION: (1)...(579)

CTHER INFORMATION: n = A,T,C or G

US-09-810-936-147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTHER INFORMATION: n - A,T,C or US-09-429-755-147
                                                                                                                                                                                         Wang, Aijun
Skeiky, Yasir A.W
                                                              : Frudakis, Tony N.:
Reed, Steven G.
: Smith, John M.
                                                                                                                               Misher, Linda E.
Dillon, Davin C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Frudakis, Tony N.
                                                                                                                                                                          Marc W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Smith, John M.
Reed, Steven G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dillon, Davin C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Misher, Lynda
Retter, Marc W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: DNA
ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
ORGANISM: Homo sapien
                                                                                                                                                                          Retter,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-429-755-147/C
```

```
545
                                                                                                                                                125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140 TCCCTGCTGAAAAATGTCGGCAAAACGGGGAAGCATCAGAAGGGCGGGGGAACTCCGTCC 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGEMLCGGFYPRLSCCLRSDSPGLGRLENKIFSVTNNTECGKLLEEIKCALCSPHSOSLF 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     379
426 ILEKEGYVKILTPEGEIFKEPYLDIHKLVQSGIKGGDERGLLSLAFHPNYKKNGKLYVSY 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   200 GGCCAGTGAACCGTGCCACACTCCGGGCAGTACATGCCGCCGGCGCGTGATACCGGCAAGA 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGGTCGCAAACTCCCGCTCCGTGCAGCGGGCTATTTCAGGATACCCTTCGTCATCAACA 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HSPEREVLERDLVLPLLCKDYCKEFFYTCRGHIPGFLQTTADEFCFYYARKDGGLCFPDF 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         366 PRKQVRGPASNYLDQMEEYDKVEEISRKHKHNCFCIQEVVSGLRQPVGALHSGDGSQRLF 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTGCGCAGCACTCAACGGCATCGTC - AGTTGCGGCTTGGAACCCCTTAGTATTTTTTTTT 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3430R1C217
CURRENT APPLICATION NUMBER: US/10/184,634
CURRENT APPLICATION NUMBER: US/10/184,634
Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
                                                                 186 TINGERWAIGPHDHILRVVEYIVSRKNPHQVDLRTARVFLEVAELHRKHLGGQLLFGPDG
                                                                                                                    499 TACAACAIGCGAATTICCCTTAAICCGGAGCTATICGTAIGATAAAAAAAACTCTICCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66 GCPILFFILFQILLILIPIPSRSRKPPTQITLAQLQTVSSAQLYLAPRAPLRHWTHRRVFY
                                        439 CTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTTGACTTTTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20 GCACCACTGTGTGTACCCCATCAGCGTGGTCCCGCAGGCCATGATTTTTGTCACAGACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         126 FCKVASLYIFLSPPPPSVSGVPYSPANSSWSCALVPLLGSGVPPHPPAPSPCCSGQTMLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186 MLSFKLLLLAVALGFFEGDAKFGERNEGSGARRRRCLNGNPPKRLKRRDRRMMSQLELLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTACAAACCAGAAGACCAGCTTTTTGTTTCTGACATCCACAAAGAAGGGAATATTCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 882;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 2.3%; Score 33.8; Di
Best Local Similarity 8.1%; Pred. No. 2.7;
Matches 46; Conservative 161; Mismatches
                                                                                                                                                                                                    559 TTCTGATTCTTGGCGCTATCGGGGAGC 587
                                                                                                                                                                                                                                           606 VFAHGLHDPGRCAVDRHPTDININLTILC 634
                                                                                                                                                                                                                                                                                                                                              Sequence 574, Application US/10184634 Publication No. US20030068684A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; ORGANISM: Homo Sapien
US-10-184-634-574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 57.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                          g
                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        요
                                        ò
                                                                            g
                                                                                                                ò
                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                           ö
                                                                                               1316 CGCGGGAGGCCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGG 1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               259
                                                                                                                        246 GGEMICGGFYPRISCCIRSDSPGLGRLENKIFSVTNNTECGKLLEEIKCALCSPHSQSLF 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           260 ATGGTCGCAAACTCCCGCTCCGTGCAGCGGGCTATTTCAGGATACCCTTCGTCATCAACA 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         366 PRKQVRGPASNYLDQMEEYDKVEEISRKHKHNCFCIQEVVSGLRQPVGALHSGDGSQRLF 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            380 ICTGCGCAGCACTCAACGCATCGTC-AGTTGCGGCTTGGAACCCCTTAGTATTTTTGT 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20 GCACCACTGTGTGTACCCCATCAGCGTGGTCCCGCAGGCCATGATTTTTGTCACAGACTC 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P34.30716.227
CURRENT APPLICATION NUMBER: US/10/184,644
CURRENT PILING DATE: 2002-06-28
FILO TRANSMEMBRANE OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66 GCPLLFFLLFQLLLLLPLPSRSRKPPTQLTLAQLQTVSSAQLYLAPRAPLRHWTHRRVFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCAGTGAACCGTGCCACACTCCGGGCAGTACATGCCGCCGGCGCTGATACCGGCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSPEREVLERDLVLPLLCKDYCKEFFYTCRGHIPGFLQTTADEFCFYYARKDGGLCFPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTACAAACCAGAAGACCAGCTTTTTTGTTTCTGACATCCACAAAGAAGGAATATTCAGG
                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1;
                                                           ö
                   Length 579;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 882;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 Similarity 8.1%; Pred. No. 2.7;
46; Conservative 161; Mismatches 361; Indels
                                                           Indels
                                                                                                                                                                               1376 CGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGG 1417
                                                                                                                                                                                                                   367 crgacarcarcaccargraccagcagaaggragaggacgrag 326
                Score 33.8; DB 10;
Pred. No. 2;
0; Mismatches 43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 33.8;
                                                                                                                                                                                                                                                                                                                   Sequence 574, Application US/10184644 Publication No. US20030044930A1 GENERAL INFORMATION:
              2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pan, James
Smith, Victoria
Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Baker, Kevin P.
APPLICANT: Chen, Jian
APPLICANT: Desnoyers, Luc
APPLICANT: Goddard, Audrey
APPLICANT: Goddwski, Paul J
APPLICANT: Gurney, Austin L
APPLICANT: Smith, Victoria
APPLICANT: Smith, Victoria
APPLICANT: Watanabe, Colin R
APPLICANT: Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Godowski, Paul J.
                                    1 Similarity 57.8 59; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; ORGANISM: Homo Sapien
US-10-184-644-574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 46; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   906
                   Query Match
                                        Best Loc
Matches
                                                                                                                                     셤
                                                                                                                                                                               ð
                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
```

us-09-674-277-1.rnpb

```
ŏ
                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1303 CTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTG 1362
439 CTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTTGACTTTTGTA 498
                                                                                                                       499 TACAACAIGCGAATITCCCTTAAICCGGAGCIAITCGTAIGAIAAAAAAAAACTCTICCIG 558
                                                                                                                                               86 TINQERWALGPHDHILRVVEYIVSRRNPHQVDLRTARVFLEVAELHRKHLGGQLLFGPDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1363 AAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      265 CAGAACGGCTTTGCTGACATCATCACCGTGTACCAGCAGAAGGTGGAGGATGTGG 211
                                                                                                                                                                                                                                                                          RESULT 19
US-10-092-154-1415/c

Sequence 1415, Application US/10092154

Sequence 1415, Application US/10092154

Sequence 1415, Application US/20030054375A1

GENERAL INFORMATION:
TITLE OF INVENTION:
TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies
CURRENT FAPLICATION NUMBER: US/10/092,154

CURRENT FILMS DATE: 2002-03-07

NUMBER OF SEQ ID NOS: 2003

PAIOT Application removed - See File Wrapper or Palm

SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 6383;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 6383;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GERERAL INFORMATION:
APPLICANT: Rosen et al.
ITILE OF INVENTION: Nucleic Acids, Proteins, and Antibodies
FILE REFERENCE: FC009
CURRENT APPLICATION NUMBER: US/09/764,847
PIOT APPLICATION ADDRE: 2001-01-17
PIOT APPLICATION GATA removed - consult PALM or file wrapper
NUMBER OF SEQ ID NOS: 2003
SOFTWARE: PATENTIN VET: 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 33.4; DB 9;
Pred. No. 16;
0; Mismatches 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 33.4; DB
Pred. No. 16;
0; Mismatches
                                                                                                                                                                                          559 TTCTGATTCTTGGCGCTATCGGGGAGC 587
                                                                                                                                                                                                                606 VFAHGLHDPGRCAVDRHPTDININLTILC 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1415, Application US/09764847
Patent No. US20020132767A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 2.2%;
Best Local Similarity 55.7%;
Matches 64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 2.2%;
Best Local Similarity 55.7%;
Matches 64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA
CORGANISM: HOMO Sapiens
US-10-092-154-1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; ORGANISM: Homo sapiens
US-09-764-847-1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -847-1415/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
              셤
                                                  ö
                                                                                 셤
                                                                                                                     à
                                                                                                                                                      g
                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

1303 CIGIGGCCCIGAICGCGGGGGGGAGGGCATACGIAAAGCACAIGGIGCAGCGICICCIG 1362

```
15674 CTGCAGGTGTACGCGGTGGAGGCCAGTGAGATGCCACAGCACACGGGGCAGCTGGTCCTG 15615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1303 CTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTG 1362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1303 CTGTGGCCCTGATCGCGGGAGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTG 1362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1363 AAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               265 CAGAACGGCTTTGCTGACATCATCACCGTGTACCAGCAGAAGGTGGAGGATGTGG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1363 AAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1363 AAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGGAGGACTGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 10; Length 21732;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 21732;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-764-847-1414/c
| Sequence 1414, Application US/09764847
| TITLE OF INVENTION: UNCleic Acids, Proteins, and Antibodies FILE REPERENCE: POOR UNCLEIC ACIDS, Proteins, and Antibodies CURRENT APPLICATION NUMBER: US/09/764,847
| CURRENT FILING DATE: 2001-01-17
| Prior application data removed - consult PALM or file wrapper NUMBER OF SEQ ID NOS: 2003
| SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                      US-10-022-154-1414/C
Sequence 1414, Application US/10092154
Publication No. US20030054375A1
SERERAL INFORMATION:
APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies FILE REFERENCE: PROOGCI
CURRENT APPLICATION NUMBER: US/10/092,154
CURRENT FILING DATE: 2002-03-07
NUMBER OF SEQ ID NOS: 2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                               Prior Application removed - See File Wrapper or Palm SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 33.4; DB
Pred. No. 37;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 33.4;
Pred. No. 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 55.7%;
Matches 64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.2%;
Best Local Similarity 55.7%;
Matches 64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
ORGANISM: Homo saplens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-092-154-1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 23
US-09-918-995-29551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 21732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-764-847-1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 1414
LENGTH: 21732
```

```
DR FILING DATE: 1997-11-13

R APPLICATION NUMBER: 60/06570

R APPLICATION NUMBER: 60/06570

R FILING DATE: 1997-11-24

R APPLICATION NUMBER: 60/075945

R FILING DATE: 1998-02-25

R FILING DATE: 1998-02-20

R APPLICATION NUMBER: 60/08332

R APPLICATION NUMBER: 60/08332

R APPLICATION NUMBER: 60/08320

R FILING DATE: 1998-04-28

R APPLICATION NUMBER: 60/08106

R FILING DATE: 1998-05-28

R FILING DATE: 1998-05-28

R FILING DATE: 1998-05-28

R APPLICATION NUMBER: 60/087607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R FILING DATE: 1998-06-05

R PAPLICATION NUMBER: 60/088212

R APPLICATION NUMBER: 60/088217

R PILING DATE: 1998-06-05

R FILING DATE: 1998-06-05

R APPLICATION NUMBER: 60/088655

R FILING DATE: 1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R APPLICATION NUMBER: 60/088861

R FILING DATE: 1998-06-11

RR APPLICATION NUMBER: 60/088876

PR FILING DATE: 1998-06-11

RR APPLICATION NUMBER: 60/089105

RR FILING DATE: 1998-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPLICATION NUMBER: 60/088025
LLING DATE: 1998-06-04
PPLICATION NUMBER: 60/088026
LLING DATE: 1998-06-04
PPLICATION NUMBER: 60/088028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/088742
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/08810
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION DATE: 1998-06-10
APPLICATION NUMBER: 60/088826
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088858
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PILING DATE: 1998-06-02
APPLICATION UNMBER: 60/087609
FILING DATE: 1998-06-02
APPLICATION NUMBER: 60/087759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ILING DATE: 1998-06-04
PPLICATION NUMBER: 60/088029
ILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LING DATE: 1998-06-04
PLICATION NUMBER: 60/088030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/088033
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LLING DATE: 1998-06-04
PPLICATION NUMBER: 60/088326
ILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/088734
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088738
FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/089440
FILING DATE: 1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/087827
FILING DATE: 1998-06-03
APPLICATION NUMBER: 60/088021
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ILING DATE: 1998-06-05
PPLICATION NUMBER: 60/088202
                                                                                      APPLICATION NUMBER: 60/065311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PLICATION NUMBER: 60/088167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LING DATE: 1998-06-02
                                                                                   PRIOR REPRESENTATION OF PRICE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1316 CGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGG 1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 149 CGGTGGAGGCCAGTGAGATGGCACAGAGACAGGGGCACTGGTCCTGCAGAACGGCTTTG 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2730P120 CURRENT APPLICATION NUMBER: US/09/992,598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 9; Length 484;
                                                GENERAL INFORMATION:
APPLICANT: Hyseq, Inc.
TITLE OF INVENTION: POVEL NUCLEIC ACID SEQUENCES OBTAINED
TITLE OF INVENTION: POVEL NUCLEIC ACID SEQUENCES;
FILE REFERENCE: 20411-756
CURRENT APPLICATION NUMBER: US/09/918,995
CURRENT FILING DATE: 2001-07-30
PRIOR FILING DATE: 1999-01-20
NUMBER OF SEQ ID NOS: 38034
SOFTWARE: FESTESE for Windows Version 3.0
SEQ ID NO 29551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1376 CGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                209 CTGACATCATCACCGTGTACCAGCAGAAGGTGGAGGATGTGG 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.2%; Score 33.2; Di
Best Local Similarity 57.8%; Pred. No. 2.9;
Matches 59; Conservative 0; Mismatches
Sequence 29551, Application US/09918995
Publication No. US20030073623A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 352, Application US/09992598
Patent No. US20020160384A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT FILING DATE: 2001-11-14
PRIOR APPLICATION NUMBER: 60/049787
PRIOR FILING DATE: 1997-06-16
PRIOR APPLICATION NUMBER: 60/062250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | NAME/KEY: misc_feature
| LCCATION: (1)...(484)
| CTHER INFORMATION: n = A,T,C or G
| US-09-918-955-29551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Grimaldi, J. Christopher
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Roy, Margaret Ann
Stewart, Timothy A.
Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fong, Sherman
Gerber, Hanspeter
Gerritsen, Mary E.
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Paoni, Nicholas F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Ashkenazi, Avi J.
APPLICANT: Baker, Kevin P.
APPLICANT: Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eaton, Dan L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 24
US-09-992-598-352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
APPLICATION NUMBER: 60/089532
FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089538
FILING DATE: 1998-06-17
                                                                                                     APPLICATION NUMBER: 60/089598
FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089599
FILING DATE: 1998-06-17
                                                                                                                                                                         APPLICATION NUMBER: 60/089600 FILING DATE: 1998-06-17 APPLICATION NUMBER: 60/089653
                                                                                                                                                                                                                                                       TLING DATE: 1998-06-18
APPLICATION NUMBER: 60/089907
                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/089908
                                                                                                                                                                                                                                                                                                                                                              TLING DATE: 1998-06-19
APPLICATION NUMBER: 60/089948
                                                                                                                                                                                                                                                                                                                                                                                              TLING DATE: 1998-06-19
PPLICATION NUMBER: 60/089952
                                                                                                                                                                                                                                                                                                                                                                                                                                TILING DATE: 1998-06-19
APPLICATION NUMBER: 60/090246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LLING DATE: 1998-06-24
PPLICATION NUMBER: 60/090444
LLING DATE: 1998-06-24
PPLICATION NUMBER: 60/090445
                                                                                                                                                                                                                          FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LING DATE: 1998-06-22
PLICATION NUMBER: 60/090254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATION NUMBER: 60/090429
IG DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LING DATE: 1998-06-24
PLICATION NUMBER: 60/090435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090472
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090535
ICATION NUMBER: 60/089514
                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/089947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TLING DATE: 1998-06-22
APPLICATION NUMBER: 60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PPLICATION NUMBER: 60/090349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLICATION NUMBER: 60/090431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PPLICATION NUMBER: 60/090676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090690
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/090557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/090863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/090678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/090695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/090862
FILING DATE: 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LICATION NUMBER: 60/090694
                                                                                                                                                                                                                                                                                                  998-06-18
                                                                                                                                                                                                                                                                                                                                     1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LING DATE: 1998-06-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ILING DATE:
                                                                                                                                                                                                                                                                                                'ILING DATE:
                                                                                                                                                                                                                                                                                                                                     ILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
```

1414 1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474 2058 IGGAITTATCCCTGTACTTGAAACATGAAACTGAAATTATGCCCGTGTTTCAAGGTTTGA 2117 1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGGAGGACT Gaps APPLICANT: 2hang, Zemin TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Actids Encoding the Same FILE REFERENCE: P2730P1C66 ö Length 3226; 58; Indels DB 9; Query Match 2.2%; Score 33.2; DB Best Local Similarity 54.0%; Pred. No. 11; Matches 68; Conservative 0; Mismatches CURRENT APPLICATION NUMBER: US/09/989,293A CURRENT FILING DATE: 2001-11-20 PRIOR APPLICATION NUMBER: 60/049787 PRIOR FILING DATE: 1997-06-16 PRIOR FILING DATE: 1998-07-02
PRIOR APPLICATION NUMBER: 60/091544
PRIOR PILING DATE: 1998-07-01
PRIOR APPLICATION NUMBER: 60/091519
PRIOR FILING DATE: 1998-07-02
PRIOR APPLICATION NUMBER: 60/091626
PRIOR APPLICATION NUMBER: 60/091632
PRIOR APPLICATION NUMBER: 60/091633
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02 Sequence 352, Application US/09989293A Patent No. US20020177164A1 APPLICATION NUMBER: 60/091478 PRIOR APPLICATION NUMBER: 60/091978
PRIOR FILING DATE: 1998-07-07
PRIOR APPLICATION NUMBER: 60/091982
PRIOR FILING DATE: 1998-07-07
PRIOR APPLICATION NUMBER: 60/092182
PRIOR FILING DATE: 1998-07-09 Grimaldi, J.Christopher Gurney, Austin L. Watanabe, Colin K. Williams, P. Mickey Wood, William I. Roy, Margaret Ann Stewart, Timothy A. Tumas, Daniel FILING DATE: 1998-07-01 Ferrara, Napoleone Gerber, Hanspeter Gerritsen, Mary E. Paoni, Nicholas F. APPLICANT: Ashkenazi, Avi J. Baker, Kevin P. Botstein, David Kljavin, Ivar J Goddard, Audrey Napier, Mary A. Desnoyers, Luc Godowski, Paul Fong, Sherman Eaton, Dan L 1475 AGGAGC 1480 2118 ATGAGC 2123 GENERAL INFORMATION: RESULT 25 US-09-989-293A-352 APPLICANT APPLICANT APPLICANT à 셤 ò g ò . **업**

NUMBER: 60/062250 1997-10-17 NUMBER: 60/065186 1997-11-12 1997-11-13 NUMBER: 60/065311 1997-11-24 NUMBER: 60/075945 1998-02-25 1998-02-25 NUMBER: 60/078910 1998-03-20 NUMBER: 60/083322 1998-03-20	55-07 60/08710 60/08760 60/08760 60/08775 60/08802 60/08802 60/08802 60/08803 60/08803 60/08803 60/08803 60/08803 60/08803 60/08803 60/08803 60/08803 60/08803	NUMBER: 60/088202 1998-06-05 1998-06-05 1998-06-05 NUMBER: 60/088217 1998-06-05 NUMBER: 60/088734 1998-06-10 NUMBER: 60/088738 1998-06-10 NUMBER: 60/088738 1998-06-10 NUMBER: 60/08872 1998-06-10 NUMBER: 60/08810 1998-06-10 NUMBER: 60/088824 1998-06-10 NUMBER: 60/088826 1998-06-11 NUMBER: 60/088858 1998-06-11 NUMBER: 60/088861 1998-06-11 NUMBER: 60/088861 1998-06-11 NUMBER: 60/088861 1998-06-11 NUMBER: 60/088861 1998-06-11 NUMBER: 60/088861 1998-06-11
APPLICATION FILING DATE FILING DATE FILING DATE APPLICATION FILING DATE	APPLICATION APPLICATION PILING DATE APPLICATION PILING DATE APPLICATION APPLICATION PILING DATE APPLIC	APPLICATION FILING DATE: APPLICATION APPLICATION FILING DATE: APPLICATION
PRIOR	PRILOR PR	PRIOR

R FILING DATE: 1998-06-24

R APPLICATION NUMBER: 60/090557

R FILING DATE: 1998-06-24

R APPLICATION NUMBER: 60/090676

R FILING DATE: 1998-06-25

NR APPLICATION NUMBER: 60/090678

PRILING DATE: 1998-06-25 R APPLICATION NUMBER: 60/090349 R FILING DATE: 1998-06-23 R APPLICATION NUMBER: 60/090355 R FILING DATE: 1998-06-23 R APPLICATION NUMBER: 60/090429 R FILING DATE: 1998-06-24 FILING DATE: 1998-06-19
APPLICATION NUMBER: 60/089948
FILING DATE: 1998-06-19
APPLICATION NUMBER: 60/089952
FILING DATE: 1998-06-19 PPLICATION NUMBER: 60/090431 ILLING DATE: 1998-06-24 PPLICATION NUMBER: 60/090435 ILLING DATE: 1998-06-24 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090445 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090472 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090535 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090542 FILING DATE: 1998-06-24 LING DATE: 1998-06-25 PLICATION NUMBER: 60/090696 LING DATE: 1998-06-25 FILING DATE: 1998-06-25 APPLICATION NUMBER: 60/090862 FILING DATE: 1998-06-26 FILING DATE: 1998-06-16 APPLICATION NUMBER: 60/089532 FILING DATE: 1998-06-17 APPLICATION NUMBER: 60/089538 PLICATION NUMBER: 60/089599 LING DATE: 1998-06-17 7090540 APPLICATION NUMBER: 60/090690 FILING DATE: 1998-06-25 60/089653 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089907 APPLICATION NUMBER: 60/090444 FILING DATE: 1998-06-25 APPLICATION NUMBER: 60/090694 LICATION NUMBER: 60/089514 60/089598 APPLICATION NUMBER: 60/089600 APPLICATION NUMBER: 60/089801 60/089908 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089947 PLICATION NUMBER: 60/090252 1998-06-25 1998-06-18 APPLICATION NUMBER: 60/ FILING DATE: 1998-06-24 1998-06-17 .998-06--90-866 -90-866 LING DATE: 1998-06 PLICATION NUMBER: LICATION NUMBER: LICATION NUMBER: LING DATE: ILING DATE:

```
R FILING DATE: 1997-11-13
R APPLICATION NUMBER: 60/066770
R FILING DATE: 1997-11-24
APPLICATION NUMBER: 60/075945
R FILING DATE: 1998-02-25
R APPLICATION NUMBER: 60/078910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   THING DATE: 1998-05-28

TRELING DATE: 1998-06-29

TRELING DATE: 1998-06-02

TRELING DATE: 1998-06-03

TRELING DATE: 1998-06-03

TRELING DATE: 1998-06-04

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R FILING DATE: 1998-06-10
R APPLICATION NUMBER: 60/088742
R FILING DATE: 1998-06-10
R APPLICATION NUMBER: 60/088810
R APPLICATION NUMBER: 60/088824
R APPLICATION NUMBER: 60/088824
R APPLICATION NUMBER: 60/088824
R FILING DATE: 1998-06-10
                                                  LICATION NUMBER: 60/062250
                                                                                                             APPLICATION NUMBER: 60/065186
                                                                                                                                FILING DATE: 1997-11-12
APPLICATION NUMBER: 60/065311
                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-03-20
APPLICATION NUMBER: 60/083322
                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-04-28
APPLICATION NUMBER: 60/084600
FILING DATE: 1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-05
APPLICATION NUMBER: 60/088217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/088734
FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/08826
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088858
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/088655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-06-11
APPLICATION NUMBER: 60/089105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-06-11
APPLICATION NUMBER: 60/088861
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06 APPLICATION NUMBER:
                                                                                                       PRIOR 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1355 GÍCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: ROY, Margaret Ann
APPLICANT: ROY, Margaret Ann
APPLICANT: Stewart, Timothy A.
APPLICANT: Tumas, Daniel
APPLICANT: Watanabe, Colin K.
APPLICANT: Watanabe, Colin K.
APPLICANT: Wood, William I.
APPLICANT: Applicant in TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same
TITLE OF INVENTION: Acids Encoding the Same
CURRENT APPLICATION WHBER: US/09/989,735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 33.2; DB Fred. No. 11; 0; Mismatches
                                                                                                 PRIOR APPLICATION NUMBER: 60/091478
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-01
PRIOR PILING DATE: 1998-07-01
PRIOR PILING DATE: 1998-07-01
PRIOR PILING DATE: 1998-07-02
PRIOR APPLICATION NUMBER: 60/091978
PRIOR PILING DATE: 1998-07-07
PRIOR APPLICATION NUMBER: 60/091978
PRIOR PILING DATE: 1998-07-07
                                               DR APPLICATION NUMBER: 60/091360
DR FILING DATE: 1998-07-01
DR FILING DATE: 1998-07-02
DR APPLICATION NUMBER: 60/091478
DR APPLICATION NUMBER: 60/091544
DR APPLICATION NUMBER: 60/091519
DR APPLICATION NUMBER: 60/091519
DR FILING DATE: 1998-07-02
DR APPLICATION NUMBER: 60/091626
DR APPLICATION NUMBER: 60/091626
DR APPLICATION NUMBER: 60/091626
DR APPLICATION NUMBER: 60/091633
DR FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 352, Application US/09989735
Publication No. US20020193299A1
GENERAL INFORMATION:
60/090863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/092182
PRIOR FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT FILING DATE: 2001-11-19
PRIOR APPLICATION NUMBER: 60/049787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Godowski, Paul J.
Grimaldi, J.Christopher
Gurney, Austin L.
Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 2.2%;
Best Local Similarity 54.0%;
Matches 68; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Desnoyers, Luc
Eaton, Dan L.
Ferrara, Napoleone
Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pan, James
Paoni, Nicholas F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Ashkenazi, Avi J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Baker, Kevin P.
Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ||||
2118 ATGAGC 2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
```

60/088876

```
PRIOR APPLICATION NUMBER: 60/08940
PRIOR APPLICATION NUMBER: 60/08912
PRIOR APPLICATION NUMBER: 60/08912
PRIOR APPLICATION NUMBER: 60/08913
PRIOR PLILING DATE: 1989-66-16
PRIOR PLILING DATE: 1989-66-16
PRIOR PLILING DATE: 1989-66-16
PRIOR PLILING DATE: 1989-66-17
PRIOR PLILING DATE: 1989-66-13
PRIOR PRILING D
```

```
1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGGGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Wood, William I.
APPLICANT: Zhang, Zemin
TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic
TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730P1019
CURRENT APPLICATION NUMBER: US/09/990,444
CURRENT FILING DATE: 2001-11-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998 GICTCATIAACAAIGCATITCAGCICGICAGCAIIGGGAAGCIGICCAIIGAAAAGGCCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 2.2%; Score 33.2; DB 9; Length 32
Best Local Similarity 54.0%; Pred. No. 11;
Matches 68; Conservative 0; Mismatches 58; Indels
PRIOR FILING DATE: 1998-06-26
PRIOR APPLICATION NUMBER: 60/090863
PRIOR PILING DATE: 1998-06-26
PRIOR PILING DATE: 1998-06-26
PRIOR FILING DATE: 1998-07-01
PRIOR FILING DATE: 1998-07-01
PRIOR PELLING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-01
PRIOR APPLICATION NUMBER: 60/09154
PRIOR APPLICATION NUMBER: 60/09159
PRIOR FILING DATE: 1998-07-02
PRIOR PELLING DATE: 1998-07-02
PRIOR PELLING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-03
PRIOR FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 352, Application US/09990444 Publication No. US20020193300A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Grimald1,J.Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Roy, Margaret Ann
Stewart, Timothy A.
Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gerritsen, Mary E. Goddard, Audrey Godowski, Paul J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fong, Sherman
Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Paoni, Nicholas F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Ashkenazi, Avi J.
APPLICANT: Baker, Kevin P.
APPLICANT: Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kljavin, Ivar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pan,James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
```

	•		
NUMBER: 1997-0 NUMBER: 1997-1 1997-1 NUMBER: 1997-1 NUMBER: 1998-0 NUMBER: 1998-0	1998 04- 1998 05- 1998 05- 1998 05- NUMBER: 6 1998 06- NUMBER: 6 1998 06- 1998 06- 1998 06- 1998 06- NUMBER: 6 1998 06- NUMBER: 6 1998 06- NUMBER: 6 1998 06- NUMBER: 6 1998 06-	1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998-	6 - 11 - 12 - 13 - 13 - 13 - 13 - 13 - 13
APPLICATION FILING DATE APPLICATION FILING DATE APPLICATION FILING DATE APPLICATION FILING DATE FILING DATE APPLICATION FILING DATE	FILING DATE PELLING DATE PELLING DATE PELLING DATE APPLICATION FILING DATE PELLING DATE APPLICATION FILING DATE: APPLICATION	FILING DATE: APPLICATION FILING DATE:	APPLICATION APPLING DATE APPLICATION FILING DATE
PR.	PRICE	PRILITE PRILIT	PRIOR

PRIOR FILING DATE: 1998-06-12

PRIOR PELICATION NUMBER: 60/089410

PRIOR PELICATION NUMBER: 60/089512

PRIOR PELICATION NUMBER: 60/089514

PRIOR PELICATION NUMBER: 60/089514

PRIOR PELICATION NUMBER: 60/089514

PRIOR PELICATION NUMBER: 60/089518

PRIOR PELICATION NUMBER: 60/089519

```
PRIOR APPLICATION NUMBER: 60/062250
PRIOR FILING DATE: 1997-10-17
PRIOR PILING DATE: 1997-11-12
PRIOR FILING DATE: 1997-11-13
PRIOR FILING DATE: 1997-11-13
PRIOR PILING DATE: 1997-11-13
PRIOR PELING DATE: 1997-11-13
PRIOR PELING DATE: 1997-11-34
PRIOR FILING DATE: 1998-02-25
PRIOR PILING DATE: 1998-03-25
PRIOR PILING DATE: 1998-03-25
PRIOR PELING DATE: 1998-03-26
PRIOR APPLICATION NUMBER: 60/08450
PRIOR PELING DATE: 1998-04-28
PRIOR PELING DATE: 1998-04-28
PRIOR PELING DATE: 1998-06-02
PRIOR PELING DATE: 1998-06-03
PRIOR PELING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R APPLICATION NUMBER: 60/087699

R FILING DATE: 1998-66-02

R APPLICATION NUMBER: 60/08759

R APPLICATION NUMBER: 60/08759

R APPLICATION NUMBER: 60/08759

R APPLICATION NUMBER: 60/088021

R APPLICATION NUMBER: 60/088025

R FILING DATE: 1998-66-04

R APPLICATION NUMBER: 60/088025

R FILING DATE: 1998-66-04

R APPLICATION NUMBER: 60/088026

R APPLICATION NUMBER: 60/088026

R APPLICATION NUMBER: 60/088026

R FILING DATE: 1998-66-04

R APPLICATION NUMBER: 60/088029

R FILING DATE: 1998-66-05

R FILING DATE: 1998-66-05

R APPLICATION NUMBER: 60/08812

R APPLICATION NUMBER: 60/08813

R APPLICATION NUMBER: 60/08813

R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08813

R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08814

R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08816

R R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08816

R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08816

R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08816

R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08816

R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08816

R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08816

R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08816

R FILING DATE: 1998-66-10

R APPLICATION NUMBER: 60/08816

R FILING DATE: 1998-66-10
                                                   FILING DATE: 1997-06-16
APPLICATION NUMBER: 60/062250
FILING DATE: 1997-10-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/088861
FILING DATE: 1998-06-11
APPLICATION NUMBER: 60/088876
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/088858
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2058 TGGATTTATCCCTGTACTTGAAACATGAAACTGAAATTATGCCCGTGTTTCAAGGTTTGA 2117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same File Reference: P2730P1C69 CURRENT APPLICATION NUMBER: US/09/989,730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 9; Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.2%; Score 33.2; EBest Local Similarity 54.0%; Pred. No. 11; Matches 68; Conservative 0; Mismatches
                                          PRIOR APPLICATION NUMBER: 60/090863
PRIOR FILING DATE: 1998-06-26
PRIOR FILING DATE: 1998-07-01
PRIOR PILING DATE: 1998-07-01
PRIOR PLING DATE: 1998-07-01
PRIOR PLING DATE: 1998-07-02
PRIOR PAPLICATION NUMBER: 60/091478
PRIOR PAPLICATION NUMBER: 60/09154
PRIOR PILING DATE: 1998-07-02
PRIOR PELING DATE: 1998-07-02
PRIOR PLING DATE: 1998-07-02
PRIOR PLING DATE: 1998-07-02
PRIOR APPLICATION NUMBER: 60/091626
PRIOR PELING DATE: 1998-07-02
PRIOR PRIOR DATE: 1998-07-07
PRIOR PELING DATE: 1998-07-07
PRIOR FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 40
US-09-999-30-352
S-09-9989-730-352
Sequence 352, Application US/09989730
Publication No. US20020197674A1
GENERAL INFORMATION:
APPLICANT: Bakensi, Avi J.
APPLICANT: Baker, Kevin P.
APPLICATION NUMBER: 60/090862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Grimaldi, J. Christopher
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Roy, Margaret Ann
Stewart, Timothy A.
Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fong, Sherman
Gerber, Hanspeter
Gerritsen, Mary E.
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eaton, Dan I.
Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Paoni, Nicholas F.
                         1998-06-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
```

```
R FILING DATE: 1998-06-24

R APPLICATION NUMBER: 60/090431

R FILING DATE: 1998-06-24

R PELING DATE: 1998-06-24

R FILING DATE: 1998-06-24

R APPLICATION NUMBER: 60/090444

R PILING DATE: 1998-06-24

R APPLICATION NUMBER: 60/090445

R FILING DATE: 1998-06-24
                                                                       APPLICATION NUMBER: 60/089512
FILING DATE: 1998-06-16
                                                                                                         APPLICATION NUMBER: 60/089514
FILING DATE: 1998-06-16
APPLICATION NUMBER: 60/089532
                                                                                                                                                                                                                                   FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089599
                                                                                                                                                                                                                                                                                                                                     TLING DATE: 1998-06-1/
APPLICATION NUMBER: 60/099801
APPLICATION NUMBER: 60/099801
                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/089908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/090349
FILING DATE: 1998-06-23
APPLICATION NUMBER: 60/090355
APPLICATION NUMBER: 60/090429
APPLICATION NUMBER: 60/090429
APPLICATION NUMBER: 60/089105
                                                                                                                                                                               APPLICATION NUMBER: 60/089538
                                                                                                                                                                                              FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089598
                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089600
                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089653
                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/089947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ILING DATE: 1998-06-22
PPLICATION NUMBER: 60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/089907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLICATION NUMBER: 60/089948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PPLICATION NUMBER: 60/090246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PPLICATION NUMBER: 60/090254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/090535
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TLING DATE: 1998-06-24
PPLICATION NUMBER: 60/090542
ILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/090676
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LICATION NUMBER: 60/090472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PPLICATION NUMBER: 60/090678
ILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: 60/090695
PRIOR FILING DATE: 1998-06-25
PRIOR APPLICATION NUMBER: 60/090696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPLICATION NUMBER: 60/090557
ILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PPLICATION NUMBER: 60/090690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090695
                                                       LING DATE: 1998-06-16
                                                                                                                                                                 FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LING DATE: 1998-06-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
```

1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGGAGGACT 1414 1998 GTCTCATTAACAATGCATTCAGCTCGTCAGCATTGGGAAGCTGTCCATTGAAAAGGCCT 2057 1415 GGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474 2058 TGGATTATCCCTGTACTTGAAACATGAAATTATGCCCGTGTTTCAAGGTFTGA 2117 0; Gaps TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic ITTLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2730PIC14 58; Indels DB 9; Query Match 2.2%; Score 33.2; Di Best Local Similarity 54.0%; Pred. No. 11; Matches 68; Conservative 0; Mismatches PRIOR APPLICATION NUMBER: 60/090863
PRIOR FILING DATE: 1998-06-26
PRIOR PELING DATE: 1998-06-26
PRIOR PELING DATE: 1998-07-01
PRIOR PELING DATE: 1998-07-01
PRIOR PELING DATE: 1998-07-02
PRIOR PAPLICATION NUMBER: 60/091478
PRIOR PELING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR PELING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR PELING DATE: 1998-07-02
PRIOR PELING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02 Sequence 352, Application US/09990436 Publication No. US20020198148A1 GENERAL INFORMATION: ILING DATE: 1998-06-26 PPLICATION NUMBER: 60/090863 ILING DATE: 1998-06-26 FILING DATE: 1998-07-07 APPLICATION NUMBER: 60/091982 APPLICATION NUMBER: 60/092182 FILING DATE: 1998-07-09 Grimaldi, J. Christopher Gurney, Austin L. Watanabe, Colin K. Williams, P. Mickey Wood, William I. Roy, Margaret Ann Stewart, Timothy A. Tumas, Daniel FILING DATE: 1998-07-07 Ferrara, Napoleone Fong, Sherman Gerritsen, Mary E. Goddard, Audrey Paoni, Nicholas F. Gerber, Hanspeter APPLICANT: Ashkenazi, Avi J. APPLICANT: Baker, Kevin P. Botstein, David Baker, Kevin P. ljavin, Ivar J Desnoyers, Luc Napier, Mary A. Godowski, Paul 1475 AGGAGC 1480 09-990-436-352 APPLICANT: APPLICANT q ò

NUMBER: US/	MBER:	NUMBER: 6	1997 - NUMBER	1997-11 NUMBER:	1997-11-13 NIMBER: 60/06677	1997-11-24	NUMBER: 1998-02	NUMBER:	1998-U3 NUMBER:	1998-04-2	1998-05-07	NUMBER: 1998-05	NUMBER: 60	NUMBER: 60	1998-06 MINABED:	1998-06-02	NUMBER: 1998-06	NUMBER: 60	1998-UO NUMBER:	1998-06-04 NITMRED: 607088026	1998-06-04	NUMBER: 1998-06	NUMBER: 60	9	1998-06-04 NUMBER: 60/088033	-04	-04	<u>ن</u> و	9	6	9	1998-06-0 NUMBER: 60	1998-06-09 NUMBER: 60/088734	-10	-10	NUMBER: 60/088742 1998-06-10	NUMBER: 60/088810	1998-06 NUMBER:	1998-06-10	NUMBER: 60/088826 1998-06-10	NUMBER:	LYSS-U6- NUMBER: 6	1998-06-11	ZK: 00/
T APPLICATION	ο	APPLICATION	FILING DATE: APPLICATION	FILING DATE: APPLICATION	FILING DATE:		APPLICATION FILING DATE:		ATION	FILING DATE:			ATION	APPLICATION	FILING DATE:	FILING DATE:	APPLICATION FILING DATE:	APPLICATION	APPLICATION	FILING DATE:	FILING DATE:	APPLICATION FILING DATE:	APPLICATION FILING DATE:	APPLICATION	FILING DATE: APPLICATION	FILING DATE:	FILING DATE:	APPLICATION FILING DATE:	APPLICATION FILING DATE:	ATION	ATION	DATE ATION	FILING DATE: APPLICATION			APPLICATION FILING DATE:	ATION	FILING DATE: APPLICATION		APPLICATION FILING DATE:	ATION	APPLICATION	ATE:	CALLON
; CURRENT	; PRIOR	ION I		; PRIOR ; PRIOR	; PRIOR	PRIOR	; PRIOR ; PRIOR	PRIOR	, PRIOR	; PRIOR	PRIOR	; PRIOR; PRIOR	PRIOR		; PRIOR		PRIOR			; PRIOR		; PRIOR ; PRIOR			; PRIOR ; PRIOR	PRIOR	PRIOR	; PRIOR	; PRIOR	PRIOR	; PRIOR	; PRIOR ; PRIOR	; PRIOR	; PRIOR	PRIOR	; PRIOR	PRIOR	; PRIOR ; PRIOR	; PRIOR	, PRIOR ; PRIOR	; PRIOR	; PRIOR	, PRIOR	FRICE

PRIOR FILING DATE: 1998-06-11

RIOR APPLICATION NUMBER: 60/08440

PRIOR PLIJING DATE: 1998-06-12

PRIOR PLIJING DATE: 1998-06-12

PRIOR APPLICATION NUMBER: 60/089512

PRIOR APPLICATION NUMBER: 60/089514

PRIOR PLIJING DATE: 1998-06-17

PRIOR PLIJING DATE: 1998-06-18

PRIOR PLIJING DATE: 1998-06-12

PRIOR PLIJING DATE

```
CURRENT FILING DATE: 3011-11-16
PRIOR APPLICATION NUMBER: 60/06226
PRIOR PELING DATE: 1997-10-17
PRIOR PELING DATE: 1997-10-17
PRIOR PELING DATE: 1997-10-17
PRIOR PELING DATE: 1997-11-12
PRIOR PELING DATE: 1997-11-13
PRIOR PELING DATE: 1997-11-13
PRIOR PELING DATE: 1997-11-13
PRIOR PELING DATE: 1997-11-24
PRIOR PELING DATE: 1998-02-25
PRIOR PELING DATE: 1998-02-25
PRIOR PELING DATE: 1998-02-26
PRIOR PELING DATE: 1998-06-27
PRIOR PELING DATE: 1998-06-28
PRIOR PELING DATE: 1998-06-28
PRIOR PELING DATE: 1998-06-28
PRIOR PELING DATE: 1998-06-02
PRIOR PELING DATE: 1998-06-02
PRIOR PELING DATE: 1998-06-02
PRIOR PELING DATE: 1998-06-02
PRIOR PELING DATE: 1998-06-03
PRIOR PELING DATE: 1998-06-04
PRIOR PELING DATE: 1998-06-05
PRIOR PELICATION NUMBER: 60/088326
PRIOR PELING DATE: 1998-06-10
PRIOR PELICATION NUMBER: 60/088326
PRIOR PELICATION NUMBER: 60/088326
PRIOR PELICATION NUMBER: 60/088326
PRIOR PELICATION NUMBER: 60/08826
PRIOR PELICATION NUMBER: 60/088326
PRIOR PELICATION NUMBER: 60/088326
PRIOR PELICATION NUMBER: 60/088326
PRIOR PELICATION NUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/088861
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic OF INVENTION: Acids Encoding the Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 2.2%; Score 33.2; DF Best Local Similarity 54.0%; Pred. No. 11; Matches 68; Conservative 0; Mismatches
                                                                                          DR APPLICATION NUMBER: 60/090863
DR FILING DATE: 1998-06-26
DR FILING DATE: 1998-06-26
DR FILING DATE: 1998-07-01
DR APPLICATION NUMBER: 60/091478
DR FILING DATE: 1998-07-02
DR APPLICATION NUMBER: 60/091544
DR FILING DATE: 1998-07-01
DR APPLICATION NUMBER: 60/091519
DR FILING DATE: 1998-07-01
DR APPLICATION NUMBER: 60/091519
DR FILING DATE: 1998-07-02
DR APPLICATION NUMBER: 60/091519
DR FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR FILING DATE: 1998-07-07
PRIOR APPLICATION NUMBER: 60/092182
PRIOR FILING DATE: 1998-07-09
APPLICATION NUMBER: 60/090696
                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 352, Application US/09991181
Publication No. US20020197615A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/091982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Godowski, Paul J.
Grimaldi, J.Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                            ILING DATE: 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Roy, Margaret Ann
Stewart, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gerber, Hanspeter
Gerritsen, Mary E.
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Paoni, Nicholas F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gurney, Austin L.
Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Baker, Kevin P.
Botstein, David
Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Napier, Mary A.
Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1118 ATGAGC 2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JS-09-991-181-352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT
```

d

á

ð

```
FALLAND DATE: 1998-06-10
ILING DATE: 1998-06-10
PPLICATION NUMBER: 60/089512
---- NATE: 1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JCATION NUMBER: 60/090349
ING DATE: 1998-06-23
JCATION NUMBER: 60/090355
ING DATE: 1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/090540
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090542
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PPLICATION NUMBER: 60/089948
ILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ICATION NUMBER: 60/090252
NG DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/090557
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090676
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/089440
FILING DATE: 1998-06-16
                                                                                ICATION NUMBER: 60/089514
NG DATE: 1998-06-16
                                                                                                                       ILING DATE: 1998-06-17
                                                                                                                                                                ICATION NUMBER: 60/089538
NG DATE: 1998-06-17
                                                                                                                                                                                                                                                 ICATION NUMBER: 60/089599
NG DATE: 1998-06-17
                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/089600
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                 CATION NUMBER: 60/089653
                                                                                                                                                                                                                                                                                                                                                                                                                      PPLICATION NUMBER: 60/089907
ILING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ICATION NUMBER: 60/089908
NG DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ICATION NUMBER: 60/089947
NG DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/089952
FILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATION NUMBER: 60/090246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PPLICATION NUMBER: 60/090254
ILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PLICATION NUMBER: 60/090429
LING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLICATION NUMBER: 60/090431 [LING DATE: 1998-06-24]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ICATION NUMBER: 60/090435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/090445
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ICATION NUMBER: 60/090472
NG DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/090678
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/090690
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ICATION NUMBER: 60/090694
NG DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090695
                                                                                                                                                                                                            ICATION NUMBER: 60/089598
                                                                                                                                                                                                                                                                                                                                                                            ICATION NUMBER: 60/089801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/090444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ICATION NUMBER: 60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-24
                                                                                                                                                                                                                                 DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-
```

Sequence 352, Application US/09993687 Publication No. US20020198149A1

US-09-993-687-352

APPLICANT: Ashkenazi, Avi J.

Botstein, David Baker, Kevin P. Desnoyers, Luc Grimaldi,J.Christopher

Godowski, Paul

Gurney, Austin L.

Gerritsen, Mary E. Goddard, Audrey

Gerber, Hanspeter

Pong, Sherman Eaton, Dan L.

Ferrara,Napoleone

.ANT: Zhang, Zemin OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic

APPLICANT: TITLE OF I

Watanabe, Colin K. Williams, P. Mickey Wood, William I.

Stewart, Timothy A

Daniel

Roy, Margaret Ann

APPLICANT

Paoni, Nicholas F

Napier, Mary A

Kljavin, Ivar

```
1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 33.2;
Pred. No. 11
PRIOR APPLICATION NUMBER: 60/090696
PRIOR FILING DATE: 1998-06-25
PRIOR FILING DATE: 1998-06-26
PRIOR FILING DATE: 1998-06-26
PRIOR PELING DATE: 1998-06-26
PRIOR APPLICATION NUMBER: 60/091869
PRIOR FILING DATE: 1998-07-01
PRIOR PELING DATE: 1998-07-01
PRIOR PILING DATE: 1998-07-01
PRIOR APPLICATION NUMBER: 60/09154
PRIOR APPLICATION NUMBER: 60/09154
PRIOR FILING DATE: 1998-07-01
PRIOR PILING DATE: 1998-07-01
PRIOR PILING DATE: 1998-07-01
PRIOR APPLICATION NUMBER: 60/091519
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
PRIOR FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION NUMBER: 60/091982 PRIOR FILING DATE: 1998-07-07 PRIOR APPLICATION NUMBER: 60/092182 PRIOR FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/091978 FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.2%;
Best Local Similarity 54.0%;
Matches 68; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2118 ATGAGC 2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
```

ION: Acids Encoding the Same P2730P1C11 RRENT APPLICATION NUMBER: US/09/993,687 PRIOR APPLICATION NUMBER: 60/049787 PRIOR FILING DATE: 1997-06-16 PRIOR FILING DATE: 1997-06-16 PRIOR FILING DATE: 1997-01-17 PRIOR APPLICATION NUMBER: 60/065186 PRIOR FILING DATE: 1997-11-12 PRIOR APPLICATION NUMBER: 60/065311 PRIOR FILING DATE: 1997-11-13 R FILING DATE: 1998-06-04

R APPLICATION NUMBER: 60/088026

R FILING DATE: 1998-06-04

R APPLICATION NUMBER: 60/088028

R APPLICATION NUMBER: 60/088028

R APPLICATION NUMBER: 60/088029

R APPLICATION NUMBER: 60/088039

R APPLICATION NUMBER: 60/088030

R FILING DATE: 1998-06-04 R APPLICATION NUMBER: 60/088810
R FILING DATE: 1998-06-10
R APPLICATION NUMBER: 60/088824
P FILING DATE: 1998-06-10
R APLICATION NUMBER: 60/088826
R FILING DATE: 1998-06-10 APPLICATION NUMBER: 60/066770 FILING DATE: 1997-11-24 APPLICATION NUMBER: 60/075945 FILING DATE: 1998-02-25 APPLICATION NUMBER: 60/078910 FILING DATE: 1998-03-20 PILING DATE: 1998-04-28
APPLICATION NUMBER: 60/084600
FILING DATE: 1998-05-07 APPLICATION NUMBER: 60/087609
APPLICATION NUMBER: 60/087609 APPLICATION NUMBER: 60/087106 FILING DATE: 1998-05-28 APPLICATION NUMBER: 60/08/607

APPLICATION NUMBER: 60/08/607

APPLICATION NUMBER: 60/08/607 APPLICATION NUMBER: 60/088021 FILING DATE: 1998-06-04 APPLICATION NUMBER: 60/088025 APPLICATION NUMBER: 60/083322 APPLICATION NUMBER: 60/087759 FILING DATE: 1998-06-02 FILING DATE: 1998-06-02 APPLICATION NUMBER: 60/087827 TLING DATE: 1998-06-04 PPLICATION NUMBER: 60/088033 APPLICATION NUMBER: 60/088326 FILING DATE: 1998-06-04 APPLICATION NUMBER: 60/088167 FILING DATE: 1998-06-05 APPLICATION NUMBER: 60/088202 FILING DATE: 1998-06-05 APPLICATION NUMBER: 60/088212 APPLICATION NUMBER: 60/088217 FILING DATE: 1998-06-05 APPLICATION NUMBER: 60/088655 FILING DATE: 1998-06-09 PPLICATION NUMBER: 60/088738 ILING DATE: 1998-06-10 APPLICATION NUMBER: 60/088742 FILING DATE: 1998-06-10 PPLICATION NUMBER: 60/088734 ILING DATE: 1998-06-10 FILING DATE: 1998-06-11 APPLICATION NUMBER: 60/08861 ILING DATE: 1998-06-03 998-06-04 1998-06-05 LING DATE: PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR

PRIOR APPLICATION NUMBER: 60/089105
PRIOR FILING DATE: 1998-06-12
PRIOR FILING DATE: 1998-06-12
PRIOR PELING DATE: 1998-06-16
PRIOR PELING DATE: 1998-06-16
PRIOR APPLICATION NUMBER: 60/089512
PRIOR PELING DATE: 1998-06-16
PRIOR PELING DATE: 1998-06-16
PRIOR PELING DATE: 1998-06-17
PRIOR APPLICATION NUMBER: 60/089532
PRIOR APPLICATION NUMBER: 60/089538
PRIOR FILING DATE: 1998-06-17
PRIOR PELING DATE: 1998-06-17
PRIOR PELING DATE: 1998-06-17
PRIOR FILING DATE: 1998-06-17
PRIOR FILING DATE: 1998-06-17
PRIOR FILING DATE: 1998-06-17
PRIOR FILING DATE: 1998-06-17 R FILLING DATE: 1998-06-17

R FILING DATE: 1998-06-17

R FILING DATE: 1998-06-17

R APPLICATION NUMBER: 60/089600

R FILING DATE: 1998-06-17

R APPLICATION NUMBER: 60/08963

R RILING DATE: 1998-06-17

R APPLICATION NUMBER: 60/089901

R APPLICATION NUMBER: 60/089907

R APPLICATION NUMBER: 60/089907

R APPLICATION NUMBER: 60/089907

R APPLICATION NUMBER: 60/089907

R APPLICATION NUMBER: 60/089908

R FILING DATE: 1998-06-18 60/088876 FILING DATE: 1998-06-19 APPLICATION NUMBER: 60/089948 FILING DATE: 1998-06-19 APFLICATION NUMBER: 60/090252
TITING DATE: 1998-06-22
TITING DATE: 1998-06-22
TITING DATE: 1998-06-32 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089947 TILING DATE: 1998-06-22 APPLICATION NUMBER: 60/090254 FILING DATE: 1998-06-22 APPLICATION NUMBER: 60/090349 FILING DATE: 1998-06-23 APPLICATION NUMBER: 60/090355 FILING DATE: 1998-06-23 FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090445
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090472 APPLICATION NUMBER: 60/089952 APPLICATION NUMBER: 60/090246 FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090431
FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090435 FILING DATE: 1998-06-24 FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090535
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090540 60/090429 APPLICATION NUMBER: 60/090444 APPLICATION NUMBER: 60/090542 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090557 APPLICATION NUMBER: 60/090678 FILING DATE: 1998-06-25 APPLICATION NUMBER: 60/090694 1998-06-19 APPLICATION NUMBER: 60/ ILING DATE: 1998-06-25 1998-06-24 TILING DATE: 1998-06-2 TLING DATE: PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR

FILING DATE: 1998-06-25

PRIOR

```
TITLE OF INVENTION: Acids Encoding the Same
                                                                            CURRENT APPLICATION NUMBER: US/09/989,734 CURRENT FILING DATE: 2001-11-19
                                                                                                                      PRIOR PRICATION NUMBER: 60/06250
PRIOR FILING DATE: 1997-06-16
PRIOR FILING DATE: 1997-06-16
PRIOR PELING DATE: 1997-10-17
PRIOR PELING DATE: 1997-10-17
PRIOR PELING DATE: 1997-11-13
PRIOR APPLICATION NUMBER: 60/065311
PRIOR PELING DATE: 1997-11-13
PRIOR PELING DATE: 1997-11-13
PRIOR PELING DATE: 1997-11-13
PRIOR PELING DATE: 1998-02-25
PRIOR PELING DATE: 1998-02-02
PRIOR PELING DATE: 1998-02-02
PRIOR PELING DATE: 1998-03-0
PRIOR PELING DATE: 1998-05-03
PRIOR PELING DATE: 1998-06-02
PRIOR PELING DATE: 1998-06-03
PRIOR PELING DATE: 1998-06-03
PRIOR PELING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R FILING DATE: 1998-06-05
R APPLICATION NUMBER: 60/088212
R FILING DATE: 1998-06-05
A PPLICATION NUMBER: 60/088217
R FILING DATE: 1998-06-05
R APPLICATION NUMBER: 60/088655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LING DATE: 1998-06-05
PLICATION NUMBER: 60/088202
LING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/088033
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/088326
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/088167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/088858
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/
APPLICATION NUMBER: 60/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LING DATE: 1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LING DATE: 1998-06-04
                                                 FILE REFERENCE: P2730P1C64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1415 GGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 33.2; DE Pred. No. 11; 0; Mismatches
                                                                                                                      R FILING DATE: 1998-06-26
R APPLICATION NUMBER: 60/090863
R APPLICATION NUMBER: 60/091360
R FILING DATE: 1998-07-01
R APPLICATION NUMBER: 60/091478
R FILING DATE: 1998-07-01
R FILING DATE: 1998-07-02
R FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 352, Application US/09989734 Publication No. US20030003531A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-07-01
APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091978
APPLICATION NUMBER: 60/090695
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Godowski, Paul J.
Grimaldi, J.Christopher
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 2.2%;
Best Local Similarity 54.0%;
Matches 68; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Desnoyers, Luc
Eaton, Dan L.
Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        oy, Margaret Ann
tewart, Timothy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Fong, Sherman
Gerber, Hanspeter
Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aoni, Nicholas F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .javin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wapier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2118 ATGAGC 2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

```
PPLICATION NUMBER: 60/089105
ILING DATE: 1998-06-12
                                       ICATION NUMBER: 60/089440
                                                       NG DATE: 1998-06-16
ICATION NUMBER: 60/089512
                                                                                                                                             APPLICATION NUMBER: 60/089532
                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/089599
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                           APLICATION NUMBER: 60/089600
ILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/089801
APPLICATION NUMBER: 60/089801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ILING DATE: 1998-06-19
PPLICATION NUMBER: 60/090246
                                                                                                                                                                                                        APPLICATION NUMBER: 60/089598
                                                                                                                                                                                                                                                                                                        LICATION NUMBER: 60/089653
                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/089907
                                                                                                                                                                                                                                                                                                                                                                                                           IPPLICATION NUMBER: 60/089908
                                                                                                                                                                                                                                                                                                                                                                                                                                          PPLICATION NUMBER: 60/089947
ILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLICATION NUMBER: 60/089948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PLICATION NUMBER: 60/089952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/090349
FILING DATE: 1998-06-23
APPLICATION NUMBER: 60/090355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-06-23
APPLICATION NUMBER: 60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TLING DATE: 1998-06-24
PPLICATION NUMBER: 60/090431
TLING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/090444
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/090435
TILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/090472
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/090542
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PLICATION NUMBER: 60/090254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/090557
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PPLICATION NUMBER: 60/090676
ILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/090690
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/090694
                                                                                                                                                                                                                                                                                                                                                                                        1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                          91-90-866
                                                                                                                                                                                            1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LING DATE: 1998-06-24
-90-8661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LLING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
```

1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGGAGGACT 1414 1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA Gaps ö DB 9; Length 3226; 58; Indels Pred. No. 11; 0; Mismatches Score 33.2; CURRENT APPLICATION NUMBER: US/10/028,072 CURRENT FILING DATE: 2001-12-19 PRIOR APPLICATION NUMBER: 60/049911 PRIOR FILING DATE: 1997-06-18 PRIOR FILING DATE: 1998-06-25
PRIOR PLING DATE: 1998-06-26
PRIOR PLING DATE: 1998-07-01
PRIOR APPLICATION NUMBER: 60/09136
PRIOR APPLICATION NUMBER: 60/091478
PRIOR PLING DATE: 1998-07-02
PRIOR PLING DATE: 1998-07-07
969060/09 APPLICATION NUMBER: 60/091982 FILING DATE: 1998-07-07 APPLICATION NUMBER: 60/092182 FILING DATE: 1998-07-09 Query Match 2.2%; Best Local Similarity 54.0%; Matches 68; Conservative Sequence 463, Application US/10 Publication No. US20030004311A1 GENERAL INFORMATION: APPLICANT: Baker, Kevin P.
APPLICANT: Beresini, Maureen Desnoyers, Luc Filvaroff, Ellen Stewart, Timothy Watanabe, Colin Gurney, Austin Goddard, Audre Godowski, Paul Wood, William rumas,Danie] 1475 AGGAGC 1480 | |||| 2118 ATGAGC 2123 PPLICANT: Zhang ITLE OF INVENTION: Query Match APPLICANT ð

NUMBER: 60 1997-08-2 NUMBER: 60 1997-09-1 NUMBER: 60 1997-09-1 NUMBER: 60 1997-09-1 NUMBER: 60 1997-09-1 NUMBER: 60 1997-09-1 NUMBER: 60	1997-09-18 1997-09-18 1997-09-19 1997-09-19 1997-09-19 1997-09-19 1997-10-17 1997-10-17 1997-10-17 1997-10-17 1997-10-17 1997-10-17 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-24 1997-10-27 1997-10-27 1997-10-27 1997-10-27 1997-10-27 1997-10-27 1997-10-27	NUMBER: 60/063 1997-10-29 1997-10-29 1997-10-29 1997-10-29 NUMBER: 60/063 1997-10-17 1997-10-17 1997-11-03 NUMBER: 60/064 1997-11-03 NUMBER: 60/065 1997-11-17 NUMBER: 60/065 1997-11-17 NUMBER: 60/065 1997-11-24 NUMBER: 60/066 1997-11-24 NUMBER: 60/066 1997-11-24 NUMBER: 60/066 1997-11-24 NUMBER: 60/066 1997-11-24 NUMBER: 60/066 1997-11-24 NUMBER: 60/066
TTION DATEN DATEN DATEN DATEN TION TION	APPLICATION APPLICATION APPLICATION FILING DATE: FILING DATE: APPLICATION FILING DATE: APPLICATION FILING DATE: APPLICATION FILING DATE: APPLICATION APPLICATION FILING DATE: APPLICATION FILING DAT	THE STATE OF THE S
		PRICOR

PRIOR FILING DATE: 1997-12-11
PRIOR PELICATION NUMBER: 60/06334
PRIOR PAPLICATION NUMBER: 60/06564
PRIOR PAPLICATION NUMBER: 60/07320
PRIOR PAPLICATION NUMBER: 60/07320
PRIOR PAPLICATION NUMBER: 60/07320
PRIOR PAPLICATION NUMBER: 60/07320
PRIOR PAPLICATION NUMBER: 60/07321
PRIOR PILING DATE: 1998-02-09
PRIOR PILING DATE: 1998-03-12
PRIOR PILING DATE: 1998-03-13
PRIOR PILING DATE: 1998-03-13
PRIOR PILING DATE: 1998-03-13
PRIOR PILING DATE: 1998-04-09
PRIOR APPLICATION NUMBER: 60/08159
PRIOR PILING DATE: 1998-04-09
PRIOR PAPLICATION NUMBER: 60/08159
PRIOR PILING DATE: 1998-04-09
PRIOR PAPLICATION NUMBER: 60/08159
PRIOR PILING DATE: 1998-04-09
PRIOR PAPLICATION NUMBER: 60/08159
PRIOR PILING DATE: 1998-04-15
PRIOR PILING DATE: 1998-05-12
PRIOR APPLICATION NUMBER: 60/08139
PRIOR PILING DATE: 1998-05-13
PRIOR P

```
1415 GGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2058 TGGATTTATCCCTGTACTTGAAACATGAAACTGAAATTATGCCCGTGTTTCAAGGTTTGA 2117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 9; Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
2.2%; Score 33.2; DB
Best Local Similarity 54.0%; Pred. No. 11;
Matches 68; Conservative 0; Mismatches
                                                                                                                                                                                  R APPLICATION NUMBER: 60/08947
R FILING DATE: 1998-06-19
R APPLICATION NUMBER: 60/090349
R FILING DATE: 1998-06-23
R APPLICATION NUMBER: 60/090429
R FILING DATE: 1998-06-24
R APPLICATION NUMBER: 60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 352, Application US/09997653
Publication No. US20030008297A1
GENERAL INFORMATION:
APPLICATION NUMBER: 60/088810
FILING DATE: 1998-06-10
                                                                        APPLICATION NUMBER: 60/089532
FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089599
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090538
FILING DATE: 1998-06-24
                                        APPLICATION NUMBER: 60/088858
FILING DATE: 19/98-06-11
                                                                                                                                                      APPLICATION NUMBER: 60/089907
FILING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/091360
FILING DATE: 1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/090863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/091982
FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ferrara, Napoleone
Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gerritsen, Mary E.
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Ashkenazi, Avi J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Botstein, David
Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Baker, Kevin P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-997-653-352
                                                                                                                                                  PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

Grimaldi,J.Christopher Gurney,Austin L.

Sodowski, Paul

Kljavin,Ivar J. Napier,Mary A. Watanabe, Colin K. Williams, P. Mickey

Roy, Margaret Ann Stewart, Timothy A.

Daniel

rumas,

Paoni, Nicholas F

```
PPLICANT: Zhang, Zemin
TILE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic
TILE OF INVENTION: Acids Encoding the Same
ILE REFERENCE: P2730P1C38
                                                                                                                THE REFERENCE: PATOPICLS
CURRENT PELLING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: 00/04976
PRIOR FILING DATE: 1997-06-16
PRIOR PELLING DATE: 1997-06-16
PRIOR PELLING DATE: 1997-10-17
PRIOR PELLING DATE: 1997-10-17
PRIOR PELLORATION NUMBER: 60/065186
PRIOR PELLORATION NUMBER: 60/065186
PRIOR PELLORATION NUMBER: 60/06511
PRIOR PELLING DATE: 1997-11-13
PRIOR PELLORATION NUMBER: 60/06570
PRIOR PELLORATION NUMBER: 60/06570
PRIOR PELLORATION NUMBER: 60/075945
PRIOR PELLORATION NUMBER: 60/075945
PRIOR PELLORATION NUMBER: 60/078910
PRIOR PELLORATION NUMBER: 60/078910
PRIOR PELLORATION NUMBER: 60/08910
PRIOR PELLORATION NUMBER: 60/08910
PRIOR PELLORATION NUMBER: 60/08910
PRIOR PELLORATION NUMBER: 60/08332
PRIOR PELLORATION NUMBER: 60/084500
PRIOR PELLORATION NUMBER: 60/084500
PRIOR PELLORATION NUMBER: 60/084500
PRIOR PELLORATION NUMBER: 60/084500
PRIOR PELLORATION NUMBER: 60/084700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R FILING DATE: 1998-06-02
R APPLICATION NUMBER: 60/087827
R FILING DATE: 1998-06-03
PAPLICATION NUMBER: 60/088021
R FILING DATE: 1998-06-04
R APPLICATION NUMBER: 60/088025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/087607
FILLING DATE: 1998-06-02
APPLICATION NUMBER: 60/087609
FILLING DATE: 1998-06-02
APPLICATION NUMBER: 60/087759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/087106
FILING DATE: 1998-05-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/088202
FILING DATE: 1998-06-05
APPLICATION NUMBER: 60/088212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/088326
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/088217
FILING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/088167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/088655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/088734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/088824
FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/088826
FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'ILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'ILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
```

```
APPLICATION NUMBER: 60/089948
APPLICATION NUMBER: 60/089952
FILING DATE: 1998-06-19
ILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/090429
R FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090431
R FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090435
R FILING DATE: 1998-06-24
R FILING DATE: 1998-06-24
R FILING DATE: 1998-06-24
R FILING DATE: 1998-06-34
R FILING DATE: 1998-06-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/090540 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/090557
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090676
APPLICATION NUMBER: 60/090678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/090254
FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/090349
FILING DATE: 1998-06-23
                  FILING DATE: 1998-06-11
NPPLICATION NUMBER: 60/088876
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089598
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PPLICATION NUMBER: 60/089947
ILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090472
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090690
                                                                                                                              APPLICATION NUMBER: 60/089440
                                                                                                                                                                    APPLICATION NUMBER: 60/089512
FILING DATE: 1998-06-16
                                                                                                                                                                                                                                   FILING DATE: 1998-06-16
APPLICATION NUMBER: 60/089532
                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/089538
                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/089599
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/089600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/089653
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/089801
FILING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLICATION NUMBER: 60/089907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LICATION NUMBER: 60/089908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLICATION NUMBER: 60/090355
LING DATE: 1998-06-23
PPLICATION NUMBER: 60/088861
                                                                                   APPLICATION NUMBER: 60/089105
                                                                                                                                                                                                                 APPLICATION NUMBER: 60/089514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ILING DATE: 1998-06-24
                                                                                                     1998-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-1
                                                                                                                                                                                                                                                                                LLING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
PRIOR
```

1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474 2058 IGGATITATCCCIGIACTIGAAACAIGAACTGAAATTAIGCCCGIGITICAAGGITIGA 2117 1355 GTCTCCTGAAAATGTATTGGCGCAGGCCCTGATGGTGCACCTGTGGAGGAGCAGGACT Gaps ö Length 3226; 58; Indels DB 9; Query Match 2.2%; Score 33.2; DB Best Local Similarity 54.0%; Pred. No. 11; Matches 68; Conservative 0; Mismatches R APPLICATION NUMBER: 60/091360
R FILING DATE: 1998-07-01
R APPLICATION NUMBER: 60/091478
R FILING DATE: 1998-07-02
R APPLICATION NUMBER: 60/091544
R FILING DATE: 1998-07-01 Sequence 352, Application US/09993667 Publication No. US20030022187A1 GENERAL INFORMATION: FILING DATE: 1998-06-25 RPPLICATION NUMBER: 60/090695 TILING DATE: 1998-06-25 APPLICATION NUMBER: 60/091633 FILING DATE: 1998-07-02 APPLICATION NUMBER: 60/091978 FILING DATE: 1998-07-07 APPLICATION NUMBER: 60/090696 FILING DATE: 1998-06-25 APPLICATION NUMBER: 60/090862 APPLICATION NUMBER: 60/091519 FILING DATE: 1998-07-02 APPLICATION NUMBER: 60/091626 FILING DATE: 1998-07-02 PRIOR APPLICATION NUMBER: 60/091982 PRIOR FILING DATE: 1998-07-07 PRIOR PPLICATION NUMBER: 60/092182 PRIOR FILING DATE: 1998-07-09 APPLICATION NUMBER: 60/090863 Grimaldi, J.Christopher Gurney, Austin L. Kljavin, Ivar J. FILING DATE: 1998-06-26 Ferrara, Napoleone Fong, Sherman FILING DATE: 1998-06-26 Gerritsen, Mary E. Goddard, Audrey Gerber, Hanspeter APPLICANT: Ashkenazi, Avi J. Baker, Kevin P. Botstein, David Napier, Mary A. Desnoyers, Luc Godowski, Paul Eaton, Dan L. 1475 AGGAGC 1480 2118 ATGAGC 2123 APPLICANT APPLICANT PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR ð g 셤 å g ò

Roy, Margaret Ann Stewart, Timothy

Stewart,

Tumas, Daniel Watanabe, Colin

APPLICANT: APPLICANT:

Paoni, Nicholas F

```
60/088876
                                                                                                                        APPLICATION NUMBER: 60/089105
                                                                                                                                                         APPLICATION NUMBER: 60/089440
                                                                                                                                                                                        60/089512
                                                                                                                                                                                                                                                                                 60/089538
                                                                                                                                                                                                                                                                                                                                              60/089599
                                                                                                                                                                                                                                                   60/089532
                                                                                                                                                                                                                                                                                                              60/089598
                                                                                                                                                                                                                      60/089514
                                                                                                                                                                                                                                                                                                                                                                           009680/09
                                                                                                                                                                                                                                                                                                                                                                                                         60/089653
                                                                                                                                                                                                                                                                                                                                                                                                                                       60/089801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LICATION NUMBER: 60/089907
ING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    806680/09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/089947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LICATION NUMBER: 60/089948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATION NUMBER: 60/089952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ICATION NUMBER: 60/090246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCATION NUMBER: 60/090349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-23
APPLICATION NUMBER: 60/090355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER: 60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATION NUMBER: 60/090254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/090435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/090472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80/090678
                                                                                                                                                                                                                                    1998-06-16
                                                                             1998-06-11
                                                                                                                                                                                                     998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                      LING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                             LING DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-22
                                               -90-8661
                                                                                                           .998-06-1
                                                                                                                                                                      1998-06-1
                                                                                                                                                                                                                                                                                                 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                        LING DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NG DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/
FILING DATE: 1998-06-25
                                                                                                                                          1998-06-
                                                                                                                                                                                                                                                                                                                                                                                          1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                              -90-866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DATE: 1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -90-8661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-
                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                    PLICATION NUMBER:
                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                           LICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                         ICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                        LICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ICATION NUMBER:
                                                                                                                                                                                                                                                                                 PLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                PPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                            LICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-06
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06
APPLICATION NUMBER:
                                                                                                                                                                                                                                    ILING DATE: 1
                                                                                                                                                                                                     LING DATE:
                                                                                                           LING DATE:
                                                                                                                                          ILING DATE:
                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                ILING DATE:
                                                                                                                                                                                                                                                                                                                                                         LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                          ILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NG DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TLING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'ILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                          IILE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic IILE OF INVENTION: Acids Encoding the Same
                                                                                       CURRENT APPLICATION NUMBER: US/09/993,667
CURRENT FILING DATE: 2001-11-14
PRIOR APPLICATION NUMBER: 60/049787
                                                                                                                                        FILING DATE: 1997-06-16
APPLICATION NUMBER: 60/062250
FILING DATE: 1997-10-17
                                                                                                                                                                                   APPLICATION NUMBER: 60/065186
FILING DATE: 1997-11-12
APPLICATION NUMBER: 60/065311
FILING DATE: 1997-11-13
                                                                                                                                                                                                                                                     ICATION NUMBER: 60/066770
                                                                                                                                                                                                                                                                                 LICATION NUMBER: 60/075945
ING DATE: 1998-02-25
                                                                                                                                                                                                                                                                                                              JCATION NUMBER: 60/078910
NG DATE: 1998-03-20
                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER: 60/087106: 1998-05-28
                                                                                                                                                                                                                                                                                                                                               PLICATION NUMBER: 60/083322
                                                                                                                                                                                                                                                                                                                                                                          NUMBER: 60/084600
1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/087759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088030
                                                                                                                                                                                                                                                                                                                                                                                                                                        ION NUMBER: 60/087607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ICATION NUMBER: 60/087609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/087827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/088025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPLICATION NUMBER: 60/088028
ILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PPLICATION NUMBER: 60/088033
ILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/088021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LICATION NUMBER: 60/088029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PPLICATION NUMBER: 60/088326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'ILING DATE: 1998-06-04
PPLICATION NUMBER: 60/088167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TLING DATE: 1998-06-05
APPLICATION NUMBER: 60/088655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PELLCATION DATE: 1998-06-05

ILING DATE: 1998-06-10

PELICATION NUMBER: 60/088734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/088202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PPLICATION NUMBER: 60/088212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/088217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPLICATION NUMBER: 60/088738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/088742
TLING DATE: 1998-06-10
Williams, P. Mickey
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                              998-04-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                998-06-05
                                                                                                                                                                                                                                                                    1997-11-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-06-10
                                                                           FILE REFERENCE: P2730P1C4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ION NUMBER:
                                hang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
PRIOR
```

PRIOR

2057

ö

```
1355 GTCTCCTGAAAATGTATTGGCGCAGGCCCTGATGGTGCACCTGTGGAGGAGCAGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                 1415 GGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998 GTCTCATTAACAATGCATTTCAGCTCGTCAGCATTGGGAAGCTGTCCATTGAAAAGGCCT 2057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2058 TGGATTTATCCCTGTACTTGAAACATGAAACTGAAATTATGCCCGTGTTTCAAGGTTTGA 2117
                                                                                                                                                                                                                                                                                                                     1998 GICTCATTAACAATGCATTTCAGCTCGTCAGCATTGGGAAGCTGTCCATTGAAAAGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1355 GTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGGAGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                         Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                             Indels
CURRENT APPLICATION NUMBER: US/10/121,049
CURRENT FILING DATE: 2002-04-12
Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          - See File Wrapper or Palm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 58;
                                                                                                                                                                                                                                             58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 9;
                                                                                                                                                                                                      DB 9;
                                                                                                                                                                                                                       Pred. No. 11;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 33.2;
                                                                                                                                                                                                         Score 33.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/10/123,904
CURRENT FILING DATE: 2002-04-16
Prior Application removed - See File Wrap
NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Application US/10123904
5. US20030022328A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.2%;
                                                                                                                                                                                                    Query Match 2.2%;
Best Local Similarity 54.0%;
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Watanabe, Colin K
Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Baker, Kevin P.
APPLICANT: Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Desnoyers, Luc
Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gurney, Austin L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 54.09
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Godowski, Paul J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sherwood, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gao, Wei-Qlang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tumas,Daniel
                                                                                                                      ; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-121-049-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ||||
2118 ATGAGC 2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Homo Sapten
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Publication No. US20
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10-123-904-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-123-904-463
                                                                       SEQ ID NO 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 463,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1355 GTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998 GICTCATTAACAATGCATTTCAGCTCGTCAGCATTGGGAAGCTGTCCATTGAAAAGGCCT 2057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Ihang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 9; Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; Score 33.2; DE; Pred. No. 11; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3330R1C17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 463, Application US/10121049
Publication No. US20030022239A1
                                                         FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090695
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090696
                                                                                                                                                                                                                     FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/091360
FILING DATE: 1998-07-01
APPLICATION NUMBER: 60/091478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/092182
FILING DATE: 1998-07-09
                                                                                                                                       FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090862
                                                                                                                                                                             FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/090863
                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-07-01
APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/091633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/091982
                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/091544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.2%;
Best Local Similarity 54.0%;
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                            1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Watanabe, Colin K
Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Baker, Kevin P. APPLICANT: Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gerritsen, Mary E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Desnoyers, Luc
Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Godowski, Paul J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gurney, Austin L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sherwood, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 36
US-10-121-049-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 463,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPĹICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT
```

셤

ð

a

ò

ð

1414

ö

```
FITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic ITLE OF INVENTION: Acids Encoding the Same
                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/09/990,438
CURRENT FILING DATE: 2001-11.14
PRIOR APPLICATION NUMBER: 60/049787
PRIOR APPLICATION NUMBER: 60/06250
PRIOR FILING DATE: 1997-10-17
PRIOR PELICATION NUMBER: 60/065186
PRIOR FILING DATE: 1997-11-12
PRIOR APPLICATION NUMBER: 60/065311
PRIOR PLICHE DATE: 1997-11-13
PRIOR APPLICATION NUMBER: 60/065311
PRIOR PLICHG DATE: 1997-11-13
PRIOR PLING DATE: 1997-11-24
PRIOR FILING DATE: 1997-11-24
PRIOR FILING DATE: 1998-02-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/078910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-05-07
APPLICATION NUMBER: 60/087106
                         Grimaldi, J. Christopher
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/084600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/087607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/087609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-02
APPLICATION NUMBER: 60/087827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/088025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/088029
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/088021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/088030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/088326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/088202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/088212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/088655
FILING DATE: 1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/088167
                                                                                                                                                                                                                                             Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                                                                                                                        Roy, Margaret Ann
Stewart, Timothy A.
                                                                                                                                                 Paoni, Nicholas F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-03-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-04-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-05-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ILING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TILING DATE: 1998-06-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-04
                                                                            Javin, Ivar J
                                                                                                   Napier, Mary A.
                                                                                                                                                                                                                    Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                        Zhang, Zemin
                                                                                                                                                                                                                    Tumas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1355 GICICCIGAAAAIGIAIIGGGGGGGGCCIGAIGGIGCACCIGIGGAGGAGGAGGACI 1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1415 GGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 9; Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                58; Indels

    See Palm or File Wrapper

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 33.2; Di
Pred. No. 11;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/140,470 CURRENT FILING DATE: 2002-05-06
                                                                                                                                                                   Sequence 463, Application US/10140470 Publication Wo. US20030022331A1 PUBLICANERAL INFORMATION: APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 352, Application US/09990438
Publication No. US20030027754A1
GENERAL INFORMATION:
APPLICANT: Ashkenazi, Avi J.
APPLICANT: Baker, Revin P.
APPLICANT: Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.2%;
54.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Smith, Victoria
Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Desnoyers, Luc
Eaton, Dan L.
Ferrara, Napoleone
Fong, Sherman
                                                                                                                                                                                                                                                                                                                   Desnoyers, Luc
Filvaroff, Ellen
Gao, Wei-Qiang
Gerritsen, Mary E
                                                                                                                                                                                                                                                                          Beresini, Maureen
DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Watanabe,Colin K
Wood,William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerber, Hanspeter
Gerritsen, Mary E.
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sherwood, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 2.28
Best Local Similarity 54.08
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                           Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                                                                    Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Prior Application removed
NUMBER OF SEQ ID NOS: 550
SEQ ID NO 463
LENGTH: 3226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tumas, Daniel
                                      2118 ATGAGC 2123
1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-140-470-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1118 ATGAGC 2123
                                                                                                                                            -10-140-470-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-990-438-352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT
à
                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 đ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
```

```
R APPLICATION NUMBER: 60/090246
R FILING DATE: 1998-06-22
R FILING DATE: 1998-06-22
R APPLICATION NUMBER: 60/090254
R FILING DATE: 1998-06-22
R APPLICATION NUMBER: 60/090349
R FILING DATE: 1998-06-23
R PILING DATE: 1998-06-23
R APPLICATION NUMBER: 60/090349
R FILING DATE: 1998-06-23
R APPLICATION NUMBER: 60/090429
R FILING DATE: 1998-06-24
R PILING DATE: 1998-06-24
R PELLING DATE: 1998-06-24
R PELLING DATE: 1998-06-24
R PELLING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A PPLICATION NUMBER: 60/089801
R FILING DATE: 1998-06-18
R FILING DATE: 1998-06-18
R PILING DATE: 1998-06-18
R PLING DATE: 1998-06-18
R APPLICATION NUMBER: 60/089908
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088742
FILING DATE: 1998-06-10
                                             FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088810
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088824
                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-12
APPLICATION NUMBER: 60/089440
FILING DATE: 1998-06-16
APPLICATION NUMBER: 60/089512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089599
FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-18
APPLICATION NUMBER: 60/089947
FILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/089948
FILING DATE: 1998-06-19
APPLICATION NUMBER: 60/089952
FILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090444
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/090445
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090472
                                                                                                                                           FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088826
                                                                                                                                                                                         FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088858
                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/088876
                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/089105
FILING DATE: 1998-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-06-16
APPLICATION NUMBER: 60/089514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/089532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PILING DATE: 1998-06-1/
APPLICATION NUMBER: 60/089598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/089653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/090535
                                                                                                                                                                                                                                         FILING DATE: 1998-06-11
APPLICATION NUMBER: 60/08861
                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-24
                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-06-11
```

```
1415 GGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1355 GTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.2%; Score 33.2; Di
Best Local Similarity 54.0%; Pred. No. 11;
Matches 68; Conservative 0; Mismatches
                                                                                           PRIOR APPLICATION NUMBER: 60/090542
PRIOR PILLING DATE: 1998-06-24
PRIOR PILLING DATE: 1998-06-24
PRIOR PELING DATE: 1998-06-24
PRIOR PELING DATE: 1998-06-25
PRIOR APPLICATION NUMBER: 60/090676
PRIOR APPLICATION NUMBER: 60/090678
PRIOR APPLICATION NUMBER: 60/090690
PRIOR APPLICATION NUMBER: 60/090690
PRIOR PELING DATE: 1998-06-25
PRIOR PELING DATE: 1998-06-26
PRIOR APPLICATION NUMBER: 60/090695
PRIOR APPLICATION NUMBER: 60/090695
PRIOR APPLICATION NUMBER: 60/090695
PRIOR PELING DATE: 1998-06-26
PRIOR PELING DATE: 1998-06-26
PRIOR PELING DATE: 1998-07-01
PRIOR PELING DATE: 1998-07-02
PRIOR PILING DATE: 1998-07-02
R FILING DATE: 1998-06-24
R PAPLICATION NUMBER: 60/090540
R FILING DATE: 1998-06-24
R APPLICATION NUMBER: 60/090542
R FILING DATE: 1998-06-24
R PAPLICATION NUMBER: 60/090557
R FILING DATE: 1998-06-24
R PAPLICATION NUMBER: 60/090676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 352, Application US/09990562; Sequence 352, Application US/09990562; Publication No. US20030027985A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 60/091982
PRIOR FILING DATE: 1998-07-07
PRIOR APPLICATION NUMBER: 60/092182
PRIOR FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Baker, Kevin P.
Botstein, David
Desnoyers, Luc
Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Ashkenazi, Avi J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
```

Fong, Sherman Gerber, Hanspeter Gerritsen, Mary E

APPLICANT: APPLICANT: APPLICANT:

60/088810 60/088742

60/088826 60/088858 60/088876

60/089512

60/089598 60/089599

60/090431 60/090435 60/090472

FILING DATE: 1998-06-24

/088734

```
1998-06-10
TMRET
                                                                                                                        APPLICATION NUMBER: 60/088824
FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-12
APPLICATION NUMBER: 60/089440
                                                                                                                                                                                                                     APPLICATION NUMBER: 60/088861
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                    PPLICATION NUMBER: 60/089532
ILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/089538
FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089598
                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/089105
                                                                                                                                                                                                                                                                                                                                                                ILING DATE: 1998-06-16
PPLICATION NUMBER: 60/089514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-06-19
APPLICATION UNMBER: 60/089948
FILING DATE: 1998-06-19
APPLICATION NUMBER: 60/089952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLICATION NUMBER: 60/089600
LING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ICATION NUMBER: 60/089653
NG DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/089907
FILING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/089908
FILING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/090349
FILING DATE: 1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLICATION NUMBER: 60/089801
LING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ICATION NUMBER: 60/089947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/090246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-06-23
APPLICATION NUMBER: 60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/090254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/090355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090444
                                                                        FILING DATE: 1998-06-10 APPLICATION NUMBER: 60/
                                                                                                                                                                                                                                                                                                                                       LLING DATE: 1998-06-16
                                                                                                          1998-06-10
                                                                                                                                                                          1998-06-10
                                                                                                                                                                                                                                                                   1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                      ING DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                998-06-24
                                                                                                                                                                                                       FILING DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60
FILING DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-24
                                       FILING DATE: 1998-06
APPLICATION NUMBER:
                         PLICATION NUMBER:
                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                    LICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                         FILING DATE:
                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                       TLING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ILING DATE:
                                                                                                                                                                                                                                                                                     PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
                                                                                                                                                                                                           TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2730PICL8 CURRENT APPLICATION NUMBER: US/09/990,562 CURRENT FILING DATE: 2001-1-14
                                                                                                                                                                                                                                                                                                                                                                  R APPLICATION NUMBER: 60/055311
R APPLICATION NUMBER: 60/065311
R APPLICATION NUMBER: 60/066770
R FILING DATE: 1997-11-24
R APPLICATION NUMBER: 60/075945
R FILING DATE: 1998-02-25
R APPLICATION NUMBER: 60/075945
                                                                                                                                                                                                                                                                          CURRENT FILLING DATE: 2001-11-14
PRIOR APPLICATION NUMBER: 60/049787
PRIOR FILING DATE: 1997-06-16
PRIOR APPLICATION NUMBER: 60/062250
PRIOR FILING DATE: 1997-10-17
PRIOR APPLICATION NUMBER: 60/065186
PRIOR FILING DATE: 1997-11-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/08/827
APPLICATION NUMBER: 60/08/827
APPLICATION NUMBER: 60/08/021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-04-28
APPLICATION NUMBER: 60/084600
FILING DATE: 1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/088025
FILLING DATE: 1998-06-04
APPLICATION NUMBER: 60/088026
FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-03-20
APPLICATION NUMBER: 60/083322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/087106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LELICATION NUMBER: 60/087609
ILING DATE: 1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088029
FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/087607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/087759
FILING DATE: 1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/088326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PLICATION NUMBER: 60/088202
LING DATE: 1998-06-05
Grimaldi, J.Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/088167
FILING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/088655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PPLICATION NUMBER: 60/088212
                                                                                                                                             Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/
                                                                                            Oy, Margaret Ann
:ewart, Timothy
                                                            Pan, James
Paoni, Nicholas F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-06-0
                                n, Ivar J
                 Gurney, Austin
                                              pier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -90-866
                                                                                                                          umas, Danie
                                                                                                          APPLICANT:
APPLICANT
                                                                                                                                                          APPLICANT:
                                                                                            APPLICANT
                                                                                                                                             APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
PRIOR
```

```
AFPLICANT: Zanang, Zemin

TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic

TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic

TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730P1C4

CURRENT PAPLICATION NUMBER: 00/049787

PRIOR FILING DATE: 1997-06-16

PRIOR FILING DATE: 1997-10-17

PRIOR FILING DATE: 1997-11-12

PRIOR FILING DATE: 1997-11-12

PRIOR FILING DATE: 1997-11-24

PRIOR PILING DATE: 1997-11-24

PRIOR PILING DATE: 1998-11-24

PRIOR FILING DATE: 1998-04-25

PRIOR FILING DATE: 1998-04-25

PRIOR FILING DATE: 1998-04-28

PRIOR FILING DATE: 1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELLING DATE: 1998-06-04

R APLICATION NUMBER: 60/088026

R FILING DATE: 1998-06-04

R RILING DATE: 1998-06-04

R FILING DATE: 1998-06-04

R RELING DATE: 1998-06-04

R APPLICATION NUMBER: 60/088029

R FILING DATE: 1998-06-04

R APPLICATION NUMBER: 60/088030

R FILING DATE: 1998-06-04

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NR FILING DATE: 1998-02-25

NR APPLICATION NUMBER: 60/078910

NR APPLICATION NUMBER: 60/08332

NR APPLICATION NUMBER: 60/08332

NR FILING DATE: 1998-04-28

NR APPLICATION NUMBER: 60/084600

NR APPLICATION NUMBER: 60/084600

NR APPLICATION NUMBER: 60/084000

NR APPLICATION NUMBER: 60/08106

NR APPLICATION DATE: 1998-05-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R FILING DATE: 1998-06-02
R APPLICATION NUMBER: 60/087827
R FILING DATE: 1998-06-03
R PELLING DATE: 1998-06-04
R FILING DATE: 1998-06-04
R APPLICATION NUMBER: 60/088025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/087607
FILING DATE: 1998-06-02
APPLICATION NUMBER: 60/087609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-06-02
APPLICATION NUMBER: 60/087759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/088212
FILING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/088167
FILING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/088202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/088217
FILING DATE: 1998-06-05
                                         Grimaldi, J.Christopher
                                                                                                                                                                                                                                                                                                                                          Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                                                                                                                                                                                             Roy, Margaret Ann
Stewart, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LING DATE: 1998-06-05
                                                                           Gurney, Austin L.
                                                                                                                                                                                                           Paoni, Nicholas F
                                                                                                                                             Napier, Mary A.
                 Godowski, Paul
                                                                                                                                                                                                                                                                                                        rumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998 GICTCATTAACAAIGCATTTCAGCICGICAGCATGGGAAGCTGTGAAAAGGCCT 2057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.2%; Score 33.2; DB 9; Length 3: 54.0%; Pred. No. 11; tive 0; Mismatches 58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 352, Application US/09997428
Publication No. US2003002716241
GENERAL INFORMATION:
APPLICANT: Ashkenazi, Avi J.
APPLICANT: Baker, Kevin P.
APPLICANT: Bestelin, David
APPLICANT: Eaton, Dan L.
APPLICANT: Fertara, applicane
APPLICANT: Fertara, applicane
APPLICANT: Gerber, Hanspeter
                                                          R APPLICATION NUMBER: 60/090542
R FILING DATE: 1998-06-24
R APPLICATION NUMBER: 60/090557
R FILING DATE: 1998-06-24
R APPLICATION NUMBER: 60/090676
R FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/090695
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090696
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/090862
FILING DAFE: 1998-06-26
APPLICATION NUMBER: 60/090863
FILING DATE: 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/091478 FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/091626
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/090678 FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/090690
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/091360 FILING DATE: 1998-07-01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/091544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/091982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/092182
FILING DATE: 1998-07-09
ICATION NUMBER: 60/090540
                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/090694
                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 54.0°
....hes 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 41
US-09-997-428-352
```

g ò ð a

```
R PELLING DATE: 1998-06-18
R APPLICATION NUMBER: 60/089908
R FILING DATE: 1998-06-18
R APPLICATION NUMBER: 60/089947
R FILING DATE: 1998-06-19
R APPLICATION NUMBER: 60/089948
                                                                       FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088742
FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                         TELING DATE: 1998-06-10

"PELICATION NUMBER: 60/08512

"THE PARTE: 1998-06-16
                               FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088738
                                                                                                                                  APPLICATION NUMBER: 60/088810
                                                                                                                                                                                    FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088826
                                                                                                                                                                                                                         FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088858
                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/088876
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/089105
FILING DATE: 1998-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-16
APPLICATION NUMBER: 60/089532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PPLICATION NUMBER: 60/089599
TLING DATE: 1998-06-17
PPLICATION NUMBER: 60/089600
                                                                                                                                              FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/08824
                                                                                                                                                                                                                                                             FILING DATE: 1998-06-11
APPLICATION NUMBER: 60/088861
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/089440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/089538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/089514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PLICATION NUMBER: 60/089598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/089801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-06-19
APPLICATION NUMBER: 60/089952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/090246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PPLICATION NUMBER: 60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/090349
FILING DATE: 1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-06-23
APPLICATION NUMBER: 60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLICATION NUMBER: 60/089907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/090355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/090435
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/090254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/090431
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090472
1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'ILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                         'ILING DATE: 1998-06
PPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
```

1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474 1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGGAGCACT Length 3226; 58; Indels DB 9; Query Match 2.2%; Score 33.2; Dest Local Similarity 54.0%; Pred. No. 11; Matches 68; Conservative 0; Mismatches PRIOR APPLICATION NUMBER: 60/090540
PRIOR FILING DATE: 1938-06-24
PRIOR FILING DATE: 1938-06-24
PRIOR FILING DATE: 1938-06-24
PRIOR PELING DATE: 1938-06-24
PRIOR APPLICATION NUMBER: 60/090557
PRIOR APPLICATION NUMBER: 60/090676
PRIOR PELING DATE: 1938-06-25
PRIOR PELING DATE: 1938-06-25
PRIOR PELING DATE: 1938-06-25
PRIOR PELING DATE: 1938-06-25
PRIOR APPLICATION NUMBER: 60/090694
PRIOR PELING DATE: 1998-06-25
PRIOR APPLICATION NUMBER: 60/090695
PRIOR PELING DATE: 1998-06-25
PRIOR PELING DATE: 1998-06-26
PRIOR PELING DATE: 1998-06-26
PRIOR PELING DATE: 1998-06-26
PRIOR PELING DATE: 1998-07-01
PRIOR FILING DATE: 1998-07-01
PRIOR PELING DATE: 1998-07-01
PRIOR APPLICATION NUMBER: 60/091519
PRIOR PELING DATE: 1998-07-02
PRIOR PELING DATE: 1998-07-02 Sequence 352, Application US/09997666 Publication No. US20030027163A1 GENERAL INFORMATION: 60/090535 APPLICATION NUMBER: 60/091626 FILING DATE: 1998-07-02 APPLICATION NUMBER: 60/091633 FILING DATE: 1998-07-02 APPLICATION NUMBER: 60/092182 FILING DATE: 1998-07-09 Desnoyers, Luc Eaton, Dan L. Ferrara, Napoleone Fong, Sherman 1998-06-24 1998-07-07 APPLICANT: Ashkenazi, Avi J. APPLICANT: Baker, Kevin P. Baker, Kevin P. Botstein, David 1475 AGGAGC 1480 2118 ATGAGC 2123 FILING DATE: RESULT 42 US-09-997-666-352 APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT: PRIOR PRIOR PRIOR PRIOR g á 셤 à ò

```
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090445
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090435
FILING DATE: 1998-06-24
                                     FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088738
                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/089105
FILING DATE: 1998-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LING DATE: 1998-06-16
PLICATION NUMBER: 60/089532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/089599
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089653
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/089908
FILING DATE: 1998-06-18
APPLICATION NUMBER: 60/089947
FILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/089948 FILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-06-19
APPLICATION NUMBER: 60/090246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/090349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-23
APPLICATION NUMBER: 60/090355
FILING DATE: 1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/090429
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/090444
FILING DATE: 1998-06-24
              APPLICATION NUMBER: 60/088734
FILING DATE: 1998-06-10
                                                                         FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088742
                                                                                                                                        APPLICATION NUMBER: 60/088810
                                                                                                                                                                             APPLICATION NUMBER: 60/088824
                                                                                                                                                                                                                   APPLICATION NUMBER: 60/088826
                                                                                                                                                                                                                                      FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088858
                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/088861
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/088876
                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/089440
                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/089512
FILING DATE: 1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/089514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/089538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PLICATION NUMBER: 60/089600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PLICATION NUMBER: 60/089801
LING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-18
APPLICATION NUMBER: 60/089907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/089952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/090254
                                                                                                                 1998-06-10
                                                                                                                                                          1998-06-10
                                                                                                                                                                                              1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-18
60-90-8661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-22
                                                                                                                                                                                                                                                                                                                                                           1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LING DATE: 1998-06-17
                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                           LING DATE:
                                                                                                                   FILING DATE:
                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same File Reference: P27301C42
CURRENT APPLICATION NUMBER: 05/09/997,666
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: 60/049787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/088033
FILING DATE: 1998-06-04
FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088167
FILING DATE: 1998-06-05
FILING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/088025
APPLICATION NUMBER: 60/088025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088029
FILING DATE: 1998-06-04
FILING DATE: 1998-06-04
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1997-10-17
APPLICATION NUMBER: 60/065186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1997-11-13
APPLICATION NUMBER: 60/066770
FILING DATE: 1997-11-24
APPLICATION NUMBER: 60/075945
FILING DATE: 1998-02-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/087609
FILING DATE: 1998-06-02
APPLICATION NUMBER: 60/087759
FILING DATE: 1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/087827
FILING DATE: 1998-06-03
APPLICATION NUMBER: 60/088021
                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1997-06-16
APPLICATION NUMBER: 60/062250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/078910
FILING DATE: 1998-03-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-04-28
APPLICATION NUMBER: 60/084600
FILING DATE: 1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/088212
FILING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-05
APPLICATION NUMBER: 60/088217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1997-11-12
APPLICATION NUMBER: 60/065311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/083322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLICATION NUMBER: 60/087106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60/088026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/087607
                                   Grimaldi,J.Christopher
                                                                                                                                                                                                               Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                                                                                                    Roy, Margaret Ann
Stewart, Timothy ?
Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-05-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-02
                                                                                                                                   Paoni, Nicholas F
                                                      Gurney, Austin L
                                                                           Kljavin, Ivar J
                                                                                                pier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                Zemin
                                                                                                                   an, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TLING DATE:
                                                                                                                                                                                                                                                                                Zhang,
                                                                                              LICANT
                                                                                                                 APPLICANT
                                                                                                                                   APPLICANT
                                                                                                                                                                           APPLICANT
                                                                                                                                                                                                APPLICANT
                                                                                                                                                                                                                                        APPLICANT
                                                                                                                                                                                                                 APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
```

```
1355 GTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGGAGCAGGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1415 GGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Wood,William
APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C353
CURRENT APPLICATION NUMBER: US/10/175,746
CURRENT FILING DAIE: 2002-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998 GTCTCATTAACAATGCATTTCAGCTCGTCAGCATTGGGAAGCTGTCCATTGAAAAGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Prior Application removed - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                                                                                                                                       Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 550
SEQ ID NO 463
LENGTH: 3226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 33.2; DE Pred. No. 11; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3330R1C382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/10/176,918 CURRENT FILING DATE: 2002-06-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 463, Application US/10176918 Publication No. US20030027275A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.2%;
54.0%;
                                                                                                                                                  Tumas, Daniel
Watanabe, Colin K
Wood, William
     Godowski, Paul J.
Gurney, Austin L.
                                                                                                                    Stewart, Timothy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Baker, Kevin P.
APPLICANT: Beresini, Maureen
APPLICANT: DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gerritsen, Mary E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Watanabe, Colin K
Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.2
Best Local Similarity 54.0
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Desnoyers, Luc
Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Stewart, Timothy
                                                                                         Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gurney, Austin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-175-746-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2118 ATGAGC 2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO 463
LENGTH: 3226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGGAGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.2%; Score 33.2; DF
54.0%; Pred. No. 11;
1ive 0; Mismatches
FRIOR PETLICATION NUMBER: 60/090540
PRIOR FILING DATE: 1998-06-24
PRIOR APPLICATION NUMBER: 60/090540
PRIOR FILING DATE: 1998-06-24
PRIOR PELING DATE: 1998-06-24
PRIOR PELING DATE: 1998-06-24
PRIOR PELING DATE: 1998-06-25
PRIOR PELING DATE: 1998-06-26
PRIOR PELING DATE: 1998-07-01
PRIOR PELING DATE: 1998-07-01
PRIOR PELING DATE: 1998-07-01
PRIOR PELING DATE: 1998-07-01
PRIOR PELING DATE: 1998-07-02
PRIOR PELING DATE: 1998-07-07
PRIOR PELING DATE: 1998-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 463, Application US/10175746
Publication No. US20030027270A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: Baker, Kevin P.
APPLICANT: Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 2.2
Best Local Similarity 54.0
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Desnoyers, Luc
Filvaroff, Ellen
Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2118 ATGAGC 2123
```

g

ó

g

δ

qq

ò

```
1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2057
                                                                                                         ö
                                                                                                                                                                   1998 GTCTCATTAACAATGCATTTCAGCTCGTCAGCATTGGGAAGCTGTCCATTGAAAAGGCCT 2057
                                                                                                                                                                                                                                   1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                           2058 IGGATITATCCCIGTACTIGAAACAIGAAACIGAAATTATGCCCGIGITICAAGITIGA 2117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1355 GTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2058 TGGATTTATCCCTGTACTTGAAACATGAAACTGAAATTATGCCCGTGTTTCAAGGTTTGA 2117
                                                                                                                                               1355 GICTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998 GICTCATIAACAAIGCATITCAGCICGICAGCAIIGGGAAGCIGICCAIIGAAAAGGCCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                         Gaps
                                                                                                         ö
                                                                DB 9; Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 9; Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58; Indels
                                                                                                       58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Prior Application removed - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 550 SEQ ID NO 463
                                                             Query Match 2.2%; Score 33.2; D
Best Local Similarity 54.0%; Pred. No. 11;
Matches 68; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.2%; Score 33.2; D
54.0%; Pred. No. 11;
iive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/176,921 CURRENT FILING DATE: 2002-06-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 463, Application US/10176921
Publication No. US20030027276A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: Baker, Kevin P.
APPLICANT: Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tumas, Daniel
Watanabe, Colin K
Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gerritsen, Mary E
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Desnoyers, Luc
Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sherwood, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 54.0
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-176-921-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                  1475 AGGAGC 1480
; ORGANISM: Homo Saplen
US-10-176-918-463
                                                                                                                                                                                                                                                                                                                                               | ||||
2118 ATGAGC 2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2118 ATGAGC 2123
                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 45
US-10-176-921-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT
                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                         a
                                                                                                                                                                                                                                   ô
                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

RESULT 46

```
Transmembrane Polypeptides and Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: Secreted and Transmembrane PITILE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2130PIC: CURRENT APPLICATION INVERE: CURRENT APPLICATION NUMBER: CO/049787 PRIOR PLICATION NUMBER: CO/049787 PRIOR FILING DATE: 1997-06-16 PRIOR PLICATION NUMBER: CO/0409787 PRIOR FILING DATE: 1997-10-17 PRIOR APPLICATION NUMBER: CO/065186 PRIOR PLICATION NUMBER: CO/065186 PRIOR PLICATION NUMBER: CO/065311 PRIOR PLICATION NUMBER: CO/076910 PRIOR PLICATION NUMBER: CO/083322 PRIOR PLICATION NUMBER: CO/084600 PRIOR APPLICATION NUMBER: CO/084600 PRIOR APPLICATION NUMBER: CO/084600 PRIOR PRIOR PLICATION NUMBER: CO/084600 PRIOR PRIOR PRIOR PLICATION NUMBER: CO/084600 PRIOR PRIOR PLICATION NUMBER: CO/084600 PRIOR PLICATION PRIOR PLICATION PRIOR PLICATION PRIOR PRIOR PLICATION PRIOR PLICATION PRIOR PRIOR PLICATI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R FILING DATE: 1998-03-20
R APPLICATION NUMBER: 60/08332
R RFILING DATE: 1998-04-28
R RAPLICATION NUMBER: 60/084600
R RAPLICATION NUMBER: 60/087106
R RAPLICATION NUMBER: 60/087106
R RELING DATE: 1998-05-28
R APPLICATION NUMBER: 60/087607
R RAPLICATION NUMBER: 60/087607
R RELING DATE: 1998-06-02
Application US/09990711 or. US20030032023A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/087609
FILING DATE: 1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/087759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/088025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/088029
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/088030
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/088021
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/087827
                                                                                                                                                                                                                                                                                                                                                                                                                                           Godowski, Paul J.
Grimaldi, J. Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Paoni, Nicholas F.
Roy, Margaret Ann
Stewart, Timothy A.
                                                                                                                                                                                                                                                                           Perrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ILLING DATE: 1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-03
                                                                                                                                                                                                                                                                                                                                                                           Gerritsen, Mary E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                           Gerber, Hanspeter
                                                                                                APPLICANT: Ashkenazi, Avi J.
APPLICANT: Baker, Kevin P.
APPLICANT: Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kljavin, Ivar J
                                                                                                                                                                                                                                                                                                                                                                                                                  Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Napier, Mary A.
                                                                                                                                                                                                       Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tumas, Daniel
                                                                                                                                                                                                                                                                                                               Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zemin
                                                                                                                                                                                                                                              Eaton, Dan L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pan, James
                                                                GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
```

```
A APPLICATION NUMBER: 60/088167
R FILING DATE: 1998-06-05
R FILING DATE: 1998-06-05
R FILING DATE: 1998-06-05
R PLING DATE: 1998-06-05
R PLING DATE: 1998-06-05
R APPLICATION NUMBER: 60/088217
R APPLICATION NUMBER: 60/088217
R APPLICATION DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/088824
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088826
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088858
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R FILING DATE: 1998-06-17
R APPLICATION NUMBER: 60/089598
R PILING DATE: 1998-06-17
R APPLICATION NUMBER: 60/089599
R FILING DATE: 1998-06-17
R APPLICATION NUMBER: 60/089600
R APPLICATION NUMBER: 60/089600
R APPLICATION NUMBER: 60/08953
                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/088655
FILING DATE: 1998-06-09
APPLICATION NUMBER: 60/088734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TLING DATE: 1998-06-11
TLING DATE: 1998-06-12
TPLICATION NUMBER: 60/089105
TTTM: DATE: 1998-06-12
                                                                                                                                                                                                                                                                                                                                                                                                            LICATION NUMBER: 60/088738
ING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088810
FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ILLING DATE: 1998-06-12
PPLICATION NUMBER: 60/089440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/088861
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TLING DATE: 1998-06-16
PPLICATION NUMBER: 60/089512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/089514
FILING DATE: 1998-06-16
PPPLICATION NUMBER: 60/089532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PELICATION DATE: 1998-0b-1/
APPLICATION NUMBER: 60/089538
TITUR DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-19
APPLICATION NUMBER: 60/089948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/089908
TILING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TILING DATE: 1998-06-17
NPPLICATION NUMBER: 60/089801
ILLING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PPLICATION NUMBER: 60/089907
ILING DATE: 1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TLING DATE: 1998-06-18
PPLICATION NUMBER: 60/089947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/089952
ILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/090246
ILLING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/090252
FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/090254
FILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-23
APPLICATION NUMBER: 60/090355
                                                                                                                                                                                                                                                                                                                                                                                1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
PRIOR
PRIOR
```

1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGGAGGAGGACT 1414 1415 GGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474 Length 3226; DB 9; Query Match
2.2%; Score 33.2; D
Best Local Similarity 54.0%; Pred. No. 11;
Matches 68; Conservative 0; Mismatches PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR PLING DATE: 1998-06-24
PRIOR PLING DATE: 1998-06-24
PRIOR PLING DATE: 1998-06-24
PRIOR PRILING DATE: 1998-06-24
PRIOR PRILING DATE: 1998-06-25
PRIOR PRILING DATE: 1998-06-26
PRIOR PRILING DATE: 1998-06-26
PRIOR PRILING DATE: 1998-06-26
PRIOR PRILING DATE: 1998-06-26
PRIOR PRILING DATE: 1998-07-01
PRIOR PRILING DATE: 1998-07-02
PRIOR PRILING DATE: 1998-07-02
PRIOR PILING DATE: 1998-07-07
R FILING DATE: 1998-06-24

R APPLICATION NUMBER: 60/090445

R APPLICATION NUMBER: 60/090472

R APPLICATION NUMBER: 60/090535

R APPLICATION NUMBER: 60/090535 APPLICATION NUMBER: 60/090431 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090435 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090444 1475 AGGAGC 1480 2118 ATGAGC 2123 PRIOR PRIOR g å à g ò 셤

1414

```
1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                            1998 GTCTCATTAACAATGCATTTCAGCTCGTCAGCATTGGAAGCTGTCCATTGAAAAGGCCT 2057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1355 GTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGAGCT 1414
APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C162
CURRENT APPLICATION NUMBER: US/10/140,474
CURRENT FILING DATE: 2002-05-06
                                                                                                                                                                                                                                                                                                                                                        1355 GTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998 GTCTCATTAACAATGCATTTCAGCTCGTCAGTTGGGAAGCTGTCCATTGAAAAGGCCT
                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                DB 9; Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 9; Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 33.2; DB 9; Length 3:
Pred. No. 11;
0; Mismatches 58; Indels
                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 550
SEQ ID NO 463
                                                                                                                        Prior Application removed - See Palm or File Wrapper NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                                                  58;
                                                                                                                                                                                                                                                                              Score 33.2; DE
Pred. No. 11;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/10/142,431 CURRENT FILING DATE: 2002-05-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 463, Application US/10142431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.2%;
                                                                                                                                                                                                                                                                            Query Match 2.2%;
Best Local Similarity 54.0%;
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US20030036179A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gerritsen, Mary E.
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Baker, Kevin P.
Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Godowski, Paul J.
Gurney, Austin L.
Sherwood, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Watanabe, Colin K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Desnoyers, Luc
Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 2.2
Best Local Similarity 54.0
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tumas, Daniel
                                                                                                                                                                                                 ; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-140-474-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2118 ATGAGC 2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; ORGANISM: Homo Sapien
US-10-142-431-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION
                                                                                                                                                           SEQ ID NO 463
LENGTH: 3226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                     å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1415 GGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1355 GTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330N1C154
CURRENT APPLICATION NUMBER: 10S/10/137,865
CURRENT FILING DATE: 2002-05-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Prior Application removed - See Palm or File Wrapper NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 33.2; DI
Pred. No. 11;
0; Mismatches
                                          Sequence 463, Application US/10137865 Publication No. US20030032155A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 463, Application US/10140474 Publication No. US20030032156Al GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 2.2%;
Best Local Similarity 54.0%;
Matches 68; Conservative (
                                                                                                                                                                                                                                                                                                                Smith, Victoria
Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                        Watanabe, Colin K
Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Godowski, Paul J.
Gurney, Austin L.
Sherwood, Steven
                                                                                                                        Beresini, Maureen
DeForqe, Laura
                                                                                                                                                                                                                   Gerritsen, Mary E.
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Baker, Kevin P.
APPLICANT: Beresini, Maureen
APPLICANT: DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gerritsen, Mary E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tumas, Daniel
Watanabe, Colin K
Wood, William
                                                                                                                                                           Desnoyers, Luc
Filvaroff, Ellen
Gao, Wel-Qiang
                                                                                                                                                                                                                                                         Godowski, Paul J. Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Desnoyers, Luc
Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                Sherwood, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gao, Wel-Qiang
                                                                                                    APPLICANT: Baker, Revin P.
                                                                                                                                                                                                                                                                                                                                                        Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGAGC 2123
                                                                                GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-137-865-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-140-474-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 463
LENGTH: 3226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT
                                                                                                                                                                                                                                                                              APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT
                                                                                                                                                                                                                                                         APPLICANT
                                                                                                                                                                                                                                                                                                                    APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

à

2057

ö

```
1415 GGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                   1355 GTCTCCTGAAAAAGTGTATTGGCGCAGGGCCTGATGGTGGACCTGTGGAGGAGGAGGAGGACT 1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1415 GGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C211
CURRENT APPLICATION NUMBER: US/10/143,114
CURRENT FILING DATE: 2002-05-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 9; Length 3226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Prior Application removed - See Palm or File Wrapper NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 2.2%; Score 33.2; D
Best Local Similarity 54.0%; Pred. No. 11;
Matches 68; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Search completed: June 19, 2003, 06:35:34 Job time : 385.433 secs
                                                                                                                                                                                        Sequence 463, Application US/10143114 Publication No. US20030036180A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tumas, Daniel
Watanabe, Colin K
Wood, William
                                                                                                                                                                                                                                                                                                Desnoyers, Luc
Filvaroff, Ellen
Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                     Surney, Austin
                                                                   1475 AGGAGC 1480
                                                                                          TYPE: DNA
CORGANISM: Homo Sapien
US-10-143-114-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1475 AGGAGC 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2118 ATGAGC 2123
                                                                                                                                                                        US-10-143-114-463
                                                                    à
                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
```

Run

```
Sequence 1, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 2, Appli
Sequence 1, Appli
Sequence 2, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-453-7028-96
US-09-453-7028-116
US-08-961-527-6
US-08-115-753-6
US-09-134-0010-2215
US-09-134-7
US-09-36-952-11
US-09-35-952-11
US-09-422-936-61
US-09-422-936-61
US-09-411-000-2
PCT-US94-01149-17
US-09-11-192A-145
US-08-975-316-85
US-08-975-316-85
                                         US-09-136-574A-1
US-08-742-185-101
US-08-804-198-1
US-09-442-055-1
US-09-442-055-1
US-09-156-316-11
US-09-128-147-38
US-09-196-390-5
US-08-196-390-5
US-08-196-390-5
US-08-135-486A-18
US-08-133-708-3
US-08-123-708-3
US-08-123-708-3
US-09-123-624-3
US-09-123-4
US-09-123-624-3
US-09-123-624-3
US-09-123-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5459251-1

US-08-465-485A-19

US-08-365-486A-14

US-09-080-285-19

US-09-724-426-19

US-09-724-426-19

US-09-724-426-19

PCT-US93-05551-4

PCT-US93-06251-2

US-09-234-186-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-764-233A-1
US-09-411-362-1
US-09-84-562-1
US-08-728-323A-1
US-09-298-568-1
US-08-457-273B-41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-400-256-16
US-08-400-256-22
US-08-400-256-25
US-08-400-256-28
US-08-400-256-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-453-265-5
                                                                                                                                                                                                                                                                                                                                                                                                    289
289
3153
4160
4403765
4411529
34063
45175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5398
9848
13187
18627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3489
10348
10348
10348
10366
10366
32207
32207
48908
                        6328
111707
43795
44377
44377
2837
                                                                                                                                                                                                                                                                                                                                                                                                                                                  000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Appl
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Appli
Appli
Appli
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Appl
                                                                                                                                                       June 18, 2003, 02:08:24; Search time 59.1139 Seconds . (Without alignments) 7724.783 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2054,
                                                                                                                                                                                                                                                                                                         1 ctgcagtccggagatgaaag......tggaaggagcctggtcgac 1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 7, Sequence 7, Sequence 1, Sequence 1, Sequence 1, Sequence 1, Sequence 20, Sequence 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 2 Sequence 2 Sequence 2 Sequence 2 Sequence 2 Sequence 4 Sequence 4 Sequence 5 Sequence 5 Sequence 1 Sequence 2 Sequence 2 Sequence 2 Sequence 2 Sequence 2 Sequence 3 Sequence 5 Sequence 6 Sequence 7 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        882724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /cgn2_6/ptodata/1/ina/5A_COMB.seq:*
/cgn2_6/ptodata/1/ina/5B_COMB.seq:*
/cgn2_6/ptodata/1/ina/6A_COMB.seq:*
/cgn2_6/ptodata/1/ina/6B_COMB.seq:*
/cgn2_6/ptodata/1/ina/PcTuS_COMB.seq:*
/cgn2_6/ptodata/1/ina/PcTuS_COMB.seq:*
                   GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-418-782-8

US-08-228-662-2

US-08-82-219-2

US-08-813-185-45

US-09-08-614A-45

US-09-08-614A-45

US-09-08-21-844-5

US-09-123-463-14

US-09-125-287-2

US-09-125-287-1

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -08-716-351A-5
-09-134-001C-2054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-674-887A-7
US-08-951-844-7
US-09-412-347-7
US-08-418-782-1
US-08-228-662-1
US-08-418-782-219-1
US-08-852-219-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-103-840A-2
US-09-103-840A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                     441362 seqs, 153338381 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum Match 0%
Maximum Match 100%
Listing first 150 summaries
                                                                                                                  nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                   IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Issued_Patents_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB
                                                                                                                                                                                                                                                      US-09-674-277-1
1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2238
2235
2235
2235
2331
2331
4403765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2221
2221
4794
4795
4795
2262
2262
2262
7218
4518
4518
12839
579
579
579
579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22.00
22000
22000
22000
22000
22000
22000
23000
33000
33000
33000
33000
33000
33000
33000
33000
33000
33000
33000
33000
33000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oŧ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                357.6
3357.6
3357.6
3357.6
3357.6
2298.4
2298.4
2298.4
2274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.2
274.
                                                                                                                                                                                                                                                         Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                  OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             88888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  08
08
                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                          Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum I
Maximum I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database
                                                                                                                                                                 :uo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
```

c 101 c 102 c 102 c 103 c 104 c 106 c 106 c 108 c 108 c 111 c 111 c 111 c 111

```
983 ATACGGCICCAGIATITCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGA 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1043 ATCCATGGGATTAAAACGCTGGGATTGCTGGCGGAAGAGAAGAAGATGACTGGGAGTC--- 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1157 CGGGAAACITCAGAAACCICITGCCGCCACGCAGATGGGACTTATTATGTCAATCCTGA 1216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1100 GGACCTGGTATACTGGGGGCCTGACAACAACCTCTTGCAGATAACCGGGATAAA---AA 1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTATGGTCATTATGGTCCTTTCTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAG 862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCCAGTCAAGAAAA 982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCTCTGAAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           683 ATCAAATCCCTGGGGGGTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           863 GACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 2238;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPOTER: IBM Compatible
OPERATING SYSTEM: Windows95
SOFTWARE: FastSEC for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/674,887A
FILLING DATE: 03-UUL-1996
APPLICATION NUMBER:
                                                                                                                                                                      FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Halle, Ph.D., Lisa A.
REGISTRATION NUMBER: 38,347
REFERENCE/DOCKET NUMBER: 09015/002001
                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION
TELEPHONE: 619/678-5070
TELEFAX: 619/678-5099
                                                                                                                                                                                                                                                                                                         TELEFAX: 619/678-5099
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Coding Sequence 1...2235
                                                                                                                                                                                                                                                                                                                                                                2238 base pairs
             MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                    TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: CDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 542; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; NAME/KEY:
; LOCATION:
US-08-674-887A-7
                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                              Appli
Appli
Appli
Appli
                                                                                                                                                                                                                                                                                    41, Appl
3, Appli
3, Appli
3, Appli
780, App
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Appli
Appli
Appli
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 13,
Sequence 13,
Sequence 13,
     Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                    Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                             Sequence A
                                                                                                                                                                                                                                                                                                                     Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                Sequence (Sequence (Sequen
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence Sequence Sequence 3 Sequence 1 Sequence 1 Sequence 1 Sequence 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence Sequence 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                  US-08-975-365-31

US-09-375-365-31

US-09-385-742B-5

US-09-385-742B-8

US-09-385-742B-8

US-09-285-742B-8

US-09-285-742B-8

US-09-285-742B-8

US-09-285-742B-8

US-09-281-419B-3

US-09-134-001C-827

US-09-299-843A-41

US-09-299-843A-41

US-09-299-843A-41

US-09-299-843A-41

US-09-299-843A-41

US-09-299-843A-41

US-09-299-843A-41

US-09-293-11153-41

US-09-213-1017B-349

US-09-212-1017B-349

US-09-222-851-18

US-09-222-851-18

US-09-222-851-18

US-09-222-851-18

US-09-222-851-18

US-09-222-851-13

US-08-320-774-6

US-09-320-774-6

US-09-320-774-6

US-09-320-774-6

US-09-320-774-6

US-09-320-774-6

US-09-320-774-6

US-09-320-774-6

US-09-222-257A-13

US-08-322-257A-13

US-09-321-12

US-09-321-12

US-09-321-12

US-09-321-12

US-09-321-12

US-09-321-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E: Fish & Richardson P.C.
4225 Executive Square, Suite 1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 7, Application US/08674887A
Patent No. 593300
GENERAL INFORMATION:
APPLICANT: Robertson, Dan E.
APPLICANT: Sanyal, Indrajit
APPLICANT: Andlikari, Robert S.
TITLE OF INVENTION: CATALASES
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS: ADDRESSE: Fish & Ri
```

0000

0 0 0 0 0 0 0 0

ပပ

AGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTC 1276

1217 708

ð 셤

ZIP: 92037 COMPUTER READABLE FORM:

La Jolla

STREET:

CITY: La STATE: CA

US-08-674-887A-7

922

982

527

```
1100 GGACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAA---AA 1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1217 AGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTC 1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1277 ACGTATGGCCATGGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGG 1336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1337 TAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACC 1396
                                                                                                                                                                                                                                     983 ATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGA 1042
                                                                                                                                                                                                                                                                                                                1043 ATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTC--- 1099
                                                                                                                                                                                                                                                                                                                                    828 AAAAACCCATGGTGCTGCCGATGCGGAGAAATATGTGGGCCGAGAGCCTGCCGCCGCGGG 887
                                                                                                     348 TATCGGTGATGGCCGTGGTGGCGGCTCCGGCTCCACAGCGCTTCGCCCCTCTCAATAG 407
                                                                                                                                                                                              CTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAAAA
                                                                                                                                                                                                                                                           803 ITAIGGICATIAIGGICCITICITIAIICGÌAIGGCIIGGCACGGIGCCGGAACAIACAG
                                                                             GACATATGATGGCCGGGGGGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        768 CCGAATGGCAATGAATGACGAAGAAACCGTGGCTCTCATAGCGGGTGGACACACTTCGG
                            1457 CATCACCAGTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM COMPATIBLE
COMPUTER: SYSTEM: Windows95
SOFTWARE: FastSEQ for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/412,347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: Fish & Richardson P.C.
STREET: 4225 Executive Square, Suite 1400
CITY: La Jolla
STATE: CA
COUNTRY: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Robertson, Dan E.
APPLICANT: Sanyal, Indrajit
APPLICANT: Adhikari, Robert S.
TITLE OF INVENTION: CATALASES
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; Sequence 7, Application US/09412347
; Patent No. 6410290
                                                                                                                                                        à
                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                           å
                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                           셤
1277 ACGIATGGCCATGGATGATGAGGAGTGTGGCCCTGATCGCGGGGGGGATACATTTGG 1336
                                                                        TAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACC 1396
                                                                                                                                                      1397 TGTGGAGGAGCAGGGACTGGGATGGAAAATAAATGTGGGTACAGGAAACGGCAAATATAC 1456
                                                                                               828 AAAAACCCAIGGIGCIGCCGAIGCGGAGAAATAIGIGGGCCGAGAGCCTGCCGCCGCGGGG 887
                                                                                                                                                                            683 ATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGA 742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      743 GGCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGA 802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               768 CCGAATGGCAATGACGAAGAACCGTGGCTCTCATAGCGGGTGGACACACTTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 2238;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         264;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24.0%; Score 357.6; DB 3; 66.7%; Pred. No. 6.8e-107; iive 0; Mismatches 264;
                                                                                                                                                                                                                                 1457 CATCACCAGTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, ADDRESSEE: CECCHI, STEWART & OLSTEIN STREET: 6 BECKER FARM ROAD
                                                                                                                                                                                                                                                         948 CATCACCAGTGGACTAGAAGGCGCCTGGACCA 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            331400-55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/951,844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/674,887
FILING DATE: July 3, 1996
ATTORNEY/AGENT INFORMATION:
NAME: Charles J. Herron
REGISTRATION NUMBER: 28,019
REFERENE/DOCKET NUMBER: 331400-5
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-994-1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 INCH DISKETTE
COMPUTER: IBM PS/2
                                                                                                                                                                                                                                                                                                                                                                      Sequence 7, Application US/08951844
Patent No. 6074860
                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: RODETISON et al.
TITLE OF INVENTION: Catalases
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OPERATING SYSTEM: MS-DOS
SOFTWARE: WORD PERFECT 5.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO: 7: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           : 2238 NUCLEOTIDES
NUCLEIC ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 66.7
Matches 542; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  201-994-1744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NEW JERSEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: ROSELAND
STATE: NEW JERSI
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          07068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-951-844-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                             a
                                                                                                                                                                                            g
                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                        ð
```

1216

707

827

```
1397 TGTGGAGGAGCAGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATAC 1456
                                                                           888 TATTGAAGAAATGAGCCTGGGGTGGAAAAACACCTACGGCACCGGACACGGTGCGGATAC 947
828 AAAAACCCAIGGIGCIGCCGAIGGGGGAGAAATAIGIGGGCCGAGAGCCIGCCGCCGCAGG 887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 688 ATCCCTGGGGGCTGATTTTGATTATGCCACAGATTTCAACAGCTGGATATGGAGGCTC 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG 807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         176 ACCCGATGGGTGCGGCGTTCGACTATGCCGCGGAGGTCGCGACCATCGACGTTGACGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   868 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                            Sequence 1, Application US/08418782
Patent No. 5658733
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Cockerill, Franklin R.
APPLICANT: Uhl, James R.
TITLE OF INVENTION: Detection of Isoniazid Resistant Strains TITLE OF INVENTION: Of M. Tuberculosis
CORRESPONDENCES: 22
CORRESPONDENCES: 22
ADDRESSEE: Schwegman, Lundberg & Woessner
STREET: 3500 IDS Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2235;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/418,782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 298.4; DB 1;
Pred. No. 1.8e-87;
0; Mismatches 296;
                                                                                                                  1457 CATCACCAGTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                          948 CATCACCAGTGGACTAGAAGGCGCCTGGACCA 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: Schwegman, Lundberg & Woessner
STREET: 3500 IDS Center
CITY: Minneapolis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: Floppy disk
""GTER: IBM PC COMPATIble
""GTER: PC-DOS/NS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: WOESSNET, WATERD D.
REGISTRATION NUMBER: 30,446
REFERENCE, POCKET NUMBER: 15
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-339-0331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 2235 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: 612-339-3061
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 502; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                              US-08-418-782-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-418-782-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          808
                                                                           g
                                    ò
                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 983 ATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGA 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1043 ATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAGATGACTGGGAGTC--- 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1100 GGACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAA---AA 1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGGAAACTICAGAAACCTCTTGCCGCCACAGATGGGACTTATTATGTCAATCCTGA 1216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1217 AGGCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTC 1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1277 ACGTATGGCCATGGATGATGAGGAGCTGTGGCCCTGATCGCGGGAGGGCATACATTTGG 1336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1337 TARAGCACATGGTGCAGCGTCTCCTGARARGTATTGGCGCAGGGCCTGATGGTGCACC 1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     923 CTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCCAGTCAAGAAAAA 982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        648 CCGAGAGCICGAAAATCCCCIGGGAGCCGTACAAATGGGACTCATCTATGTAAACCCCGA 707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       743 GGCTCTGAAAAAAAAATTTCAAAATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           683 ATCAAATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  168 ATCGGACCCAAACGACCCGGATTTTGACTATGCCGAAGAGTTTAAGAAGCTAGATCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         228 AGCGGTTAAAAAGGACCTGGCAGCGCTAATGACAGATTCACAGGACTGGTGGCCAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            863 GACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               768 CCGAATGGCAATGAATGACGAAAAACCGTGGCTCTATAGCGGGTGGACACCTTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2238;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 357.6; DB 4; Length:
Pred. No. 6.8e-107;
0; Mismatches 264; Indels
                                                                                                                            09015/002001
    PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/674,887
                                                                         NAME: Halle, Ph.D., Lisa A.
REGISTRATION NUMBER: 38,347
REFRENCE/DOCKET NUMBER: 0901:
TELECOMMUNICATION INFORMATION:
TELEFAN: 619/678-5070
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 2238 base pairs
TYPE: nucleic acid
STRANDENESS: double
                                                                                                                                                                                                                                                                                                                                                          Coding Sequence 1...2235
                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 66.79
Matches 542; Conservative
                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                               TOPOLOGY: 11
MOLECULE TYPE:
                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                      ; NAME/KEY:
; LOCATION:
US-09-412-347-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         708
```

셤 ö

ð g

셤 à

ð g õ 셤 à à 셤 셤 ò 셤 ö 셤 ò a

S

```
TOPOLOGY: lir
MOLECULE TYPE:
                                                                                                  US-08-228-662-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1108
                                                                                                                                                                                                                                                                                                                                                                                                                                    1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1465
                                                                                                                                                                                                                                                         808
                                                                                                                                                                                                                                                                                                     898
                                                                                                                                                                                                                                                                                                                                              928
                                                                                                                                                                                                                                                                                                                                                                    416
                                                                                                                                                                                                                                                                                                                                                                                         988
                                                                                                                                                                                                                                                                                                                                                                                                              476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             953
                                                                                                                                                                                       셤
                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                            엄
                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                      1107
                                                                                                                                                                            1224
                                                                                                                                                                                                                                                                                                              1404
                                                                                                                                                                                                                                                                                                                                                        AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                            GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                        CCGACAACGCCAGCTTGGACAAGGCGCCCGGCTGCTGTGGCCGGTCAAGAAGAAGTACG
                                                                                                                                                                                                                                                                                                              ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG
CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                               GCAAGAAGCTCTCATGGGCGGACCTGATTGTTTCGCCGGCAACTGCGCGCTGGAATCGA
                                                                                     TGGGATTTAAAACGCTGGGATTTTGCTGGCGGAAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                  GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                                  CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: COCKERILL, FRANKLIN R.
APPLICANT: KLINE, BRUCE C.
APPLICANT: UHL, JAMES R.
TITLE OF INVENTION: DETECTION OF ISONIAZID RESISTANT STRAINS
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SYSTEM: PC-DOS/MS-DOS
PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: SCHWEGMAN, LUNDBERG & WOESSNER,
STREET: 3500 IDS CENTER
CITY: MINNEAPOLIS
STATE: MINNESOTA
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
NAME: WOESSNER, WARREN D.
RESISTRATION UNMBER: 30,440
REFERENCE/DOCKET NUMBER: 150.123US01
                                                                                                                                                                                                                                                                                                                                                                                                    GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                       GCGCCATCGAGGTCGTATGGACGA 976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 18-APR-1994
CLASIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/08228662
Patent No. 5688639
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OPERATING SYSTEM:
SOFTWARE: PatentI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   55402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-228-662-1
                                                                                     1048
                                                                                                                                1108
                                                                                                                                                                           1165
                                                                                                                                                                                                                       1225
                                                                                                                                                                                                                                                                  1285
                                                                                                                                                                                                                                                                                                              1345
                                                                                                                                                                                                                                                                                                                                                        1405
                                                                                                                                                                                                                                                                                                                                                                                                   1465
                                         988
                                                               476
                                                                                                           536
                                                                                                                                                      596
                                                                                                                                                                                                929
                                                                                                                                                                                                                                                                                       176
                                                                                                                                                                                                                                                                                                                                  836
                                                                                                                                                                                                                                                                                                                                                                              893
                                                                                                                                                                                                                                                                                                                                                                                                                         953
                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 5
                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                     a
                   셤
                                         ò
                                                              셤
                                                                                     ð
                                                                                                         셤
                                                                                                                                ò
                                                                                                                                                     a
                                                                                                                                                                            ð
                                                                                                                                                                                               셤
                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                            음
                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

```
1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGGATTTAAAACGCTGGGATTTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTATGTCAATCCTGAAGGCCCCG 1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGACAACGCCAGCTTGGACAAGGCGCGGCTGCTGTGGCCGGTCAAGAAGAAGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGATGGCCGGGGGGGCGCCAGTGGTGGTCAGCAACGTTTTGAACGGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             356 ACGACGCCGCGGCGCCGCGGGGGCGGCATGCAGCGGTTCGCGCCGCTTAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGATAACGTTAATCTGGATAAAGCCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Areacecece --- acceeeceareres reserves acces as a reserves as a reserve as a reserves as a reserve as a reserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2235;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 1.8e-87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20.0%; Score 298.4; 62.4%; Pred. No. 1.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGCCATCGAGGTCGTATGGACGA 976
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-339-0331
TELEFAX: 612-339-3061
                                                                                                                                                                                                                                                                                                                                                                                    DNA (genomic)
                                                                                                                                                                                                     LENGTH: 2235 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                              TELEFAX: 612-339-3061
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 502; Conservative
                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
```

```
1108 TATACTGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                             1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
536 TGGGCTTCAAGACGTTCGGGTTCGGCCCGGGTCGACCAGTGGGAGCCCGATGAGG 595
                                                                        596 retartiggecaaggaagecacerescrescresarsascertacas
                                                                                                                                                                                                               1285 CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                             1405 AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                     1225 GIGGAAAACCAGAICCICIGGCIICCGCGAAAGAIAICAGGGAAGCIIIITCACGIAIGG
                                                                                                                                                                                                                                                                                                                                                                        836 Argececce---ecceeccareregressececaaccesaserserecresses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: COCKETIL, Franklin R.
APPLICANT: COCKETIL, Bruce C.
APPLICANT: Kline, Bruce C.
APPLICANT: Thi, James R.
TITLE OF INVENTION: Detection of Isoniazid Resistant Strains
TITLE OF INVENTION: of M. Tuberculosis
NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS: CORRESPONDENCE ADDRESSE: Schwegman, Lundberg & Woessner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/418,782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SSEE: Schwegman, Lundberg & Woessner
I: 3500 IDS Center
Minneapolis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 953 GCGCATCGAGGTCGTATGGACGA 976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 20, Application US/08418782
Patent No. 5658733
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
NAME: WOOSSNEY, WAITEN D.
REGISTRATION NUMBER: 30,4
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 2331 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     612-339-3061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 55402
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-418-782-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE
                                                                          ద
                                                                                                             à
                                                                                                                                                                                      õ
                                                                                                                                                                                                                           a
                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1048 TGGGATTTAAAACGCTGGGATTTGCTGGGAGAGAAGAAGATGACTGGGAGTCGGACTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      688 AICCCIGGGGGGCTGATTTTGATTATGCCACAGATTTCAACAGCTGGATATGGAGGCTC 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGAAAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG 807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              356 ACGACGCCGCGCGCGCGCGCGGCGCATGCAGCGGTTCGCGCCGCTTAACAGCTGGC 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             176 ACCCGATGGGTGCGCGTTCGACTATGCCGCGGAGGTCGCGACCATCGACGTTGACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      868 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
9
                   APPLICANT: Cockerill, Franklin R.
APPLICANT: Kline, Bruce C.
APPLICANT: Kline, Bruce C.
APPLICANT: Uhl, James R.
TITLE OF INVENTION: Detection of Isoniazid Resistant Strains
TITLE OF INVENTION: Of M. Tuberculosis
NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS:
ADDRESSEE: Muc+'--
STREEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 2235;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                               ADDRESSEE: Mueting, Raasch & Gebhardt, p.A.
STREET: 119 No. 5922575th Fourth Street, Ste. 203
CITY: Minneapolis
                                                                                                                                                                                                                                                                                                                                                            IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 298.4; DB 2;
Pred. No. 1.8e-87;
0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        230.00010130
                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/852,219
FILING DATE: O7-May-1997
CLASSIFICATION: 435
                           Sequence 1, Application US/08852219
Patent No. 5922575
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: Sandberg, Victoria A.
REGISTRATION NUMBER: 41,287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER: 23
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-305-1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: 612-305-1228
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 2235 base pairs
                                                                                                                                                                                                                                                                                                                                                Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 62.49
Matches 502; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                  OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; TOPOLOGY: linear; MOLECULE TYPE: DNA US-08-852-219-1
                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                           55401
                                                                                                                                                                                                                                                                            Ž
                                                                                                                                                                                                                                                                                                                                                                COMPUTER:
                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
```

us-09-674-277-1.rni

```
TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       688 ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    868 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  928 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2331;
       Detection of Isoniazid Resistant Strains of M. Tuberculosis
22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Eleppy disk
COMPUTER: Eleppy disk
COMPUTER: THEM PC. COMPATIBLE
COMPUTER: THEM PC. DOS/AKS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/852,219
FILING DATE: U7-May 1997
CLASSIFICATION: 435
ATTONREY/AGENT INFORMATION:
NAME: Sandberg, Victoria A.
REGISTRATION NUMBER: 41,287
REFERENCE/DOCKET NUMBER: 43,287
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION IN
                                                                        CORRESPONDENCE ADDRESS:
ADDRESSEE: Mucting, Raasch & Gebhardt, P.A.
STREET: 119 No. 5922575th Fourth Street, Ste. 203
CITY: Minneapolis
STATE: No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match 20.0%; Score 298.4; DB 2; Best Local Similarity 62.4%; Pred. No. 1.9e-87; Matches 502; Conservative 0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 612-305-1228
INFORMATION FOR SEQ ID NO: 20:
SEQUENCE CHARACTERISTICS:
LENGTH: 2331 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: CDS
LOCATION: 70..2289
  TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: DNA
                                                                                                                                                                                                                       55401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; LOCATION:
US-08-852-219-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGCCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          988 GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1165 TTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTATGTCAATCCTGAAGGCCCCG 1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1225 GIGGAAAACCAGAICCICIGGCIICCGCGAAAGAIAICAGGGAAGCIITITICACGIAIGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1405 AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                           747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1108 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                   867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            748 IGAAAAAAGATATCAAAGATITGCIGACAACTICCCAGGAITGGIGCCCTGCGGAITAIG 807
                                                                                                                                                                                           688 ATCCCTGGGGGCTGATTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                          GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               836 CCATGAACGACGTCGAAACAGCGCCGTGATCGTCGCGGCGGTCACACTTTCGGTAAGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    868 ATGATGGCCGGGGAGGCGCCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                   Gaps
                                                                                                                                                   ;
9
                                                                                               Length 2331;
                                                                                               20.0%; Score 298.4; DB 1; Length 62.4%; Pred. No. 1.9e-87; ive 0; Mismatches 296; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1013 GCGCCATCGAGGTCGTATGGACGA 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 20, Application US/08852219
Patent No. 5922575
GENERAL INFORMATION:
APPLICANT: Cockerill, Franklin R. APPLICANT: Kline, Bruce C. APPLICANT: Uhl, James R.
                                                                                                                                              Conservative
  CDS
70..2289
                                                                                                                        al Similarity
502; Conserv
; NAME/KEY:
; LOCATION:
US-08-418-782-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-852-219-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1465
                                                                                                                                                                                                                                                                                                                                                                                       808
                                                                                                    Query Match
                                                                                                                          Best Local
Matches 5(
                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                        合
                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
```

à

ö

ò

à

ò

à

ä

Gaps

747 295 807 355 867 415 1047

595

475 987 535

927

1107

us-09-674-277-1.rni

œ

```
1152903 GCAAGAAGCTCTCATGGGCGGACCTGATGTTTTCGCCGGCAACTGCGCGCTGGAATCGA 2152844
                                                                                                                                                                                                  2152723 TGGAGAACCCGCTGGCCGCGGTGCAGATGGGGCTGATCTACGTGAACCCGGAGGGCCGA 2152664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2155943 ACCCGATGGGTGCGGCGTTCGACTATGCCGCGGAGGTCGCGACCATCGACGTTGACGCC 2155884
2152963 CCGACAACGCAGCTTGGACAAGGCGCGGCTGCTGTGGGCGGTCAAGAAGAAGTACG
                                               GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA
                                                                                                                                     1152843 TGGGCTTCAAGACGTTCGGCTTCGGCTTCGGCCGGTCGACCAGGGGGCCCGATGAGG
                                                                                                               TGGGATTTAAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                                                                                              TATACTGGGGGCCTGACAACCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                                                                             1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                                                                                                                                                                                                                                                             2152603 CCATGAACGACGTCGAAACAGCGGCGCTGATCGTCGGCGCGCTCACTTTCGGTAAGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1405 AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA
                                                                                                                                                                                                                                                                                                                                                                          1285 CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                         1345 ATGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              688 ATCCCIGGGGGCTGATITIGATIAIGCCACCAGATITCAACAGCIGGAIAIGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:

APPLICANT: FIRISCHMAN, Robert D.
APPLICANT: WITTE, Owen R.
APPLICANT: WITTE, Owen R.
APPLICANT: WITTE, Owen R.
APPLICANT: VENTER, John C.
TITLE OF INVENTION: DNA SEQUENCES FOR STRAIN ANALYSIS IN MYCOBACTERIUM
TITLE OF INVENTION: TUBERCULOSIS
CURRENT APPLICATION NUMBER: U5/09/103,840A
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 4; Length 4411529;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 298.4; DB 4
Pred. No. 1.8e-85;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2152426 GCGCCATCGAGGTCGTATGGACGA 2152403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Mycobacterium tuberculosis
OTHER INFORMATION: H37Rv
US-09-103-840A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1, Application US/09103840A Patent No. 6294328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 20.0%;
Best Local Similarity 62.4%;
Matches 502; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEO ID NO 1
LENGTH: 4411529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
US-09-103-840A-1/c
                                                   988
                                                                                                                                                                                1108
                                                                                                                                                                                                                                             1165
                                                                                                                1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: DNA
                                               à
                                                                            g
                                                                                                               ð
                                                                                                                                       g
                                                                                                                                                                                                           g
                                                                                                                                                                              à
                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                          а
                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2153083 GCCACTACGGGCCGCTGTTTATCCGGATGGCGTGGCACGCTGCCGGCACCTACCGCATCC 2153024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2153084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCATGGATGATGAGAGACTGTGGCCCTGATCGCGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                             1404
                                                                                                                                                                                                                                                                          1464
                                                                                                                                                                                                                                                                                        TTCAGAAACCICTTGCCGCCACGCAGATGGGACTTATTTATGTCAATCCTGAAGGCCCCG 1224
                                                                                                                                                                                                                         688 ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG 987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sednence
                           GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG
                                                                                        ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG
                                                                                                                                                    AGCAGGGACTGGGAAAAAAAAATAAATGTGGTACAGGAAAACGGCAAATATACCATCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 2, Application US/09103840A
Patent No. 6294328
GENERAL INFORMATION:
APPLICANT: FLEISCHMAN, Robert D.
APPLICANT: WHITE, Owen R.
APPLICANT: VENTER, John C.
APPLICANT: VENTER, John C.
TITLE OF INVENTION: TUBECCLIOSIS
FILE REFERENCE: 24366-20007.00
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGATGGCCGGGGAGGCGCCCAGTGGTCAGCAACGTTTTGAACGGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 298.4; DB 4; Length 4403765;
Pred. No. 1.8e-85;
0; Mismatches 296; Indels 6; G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: CDC 1551
OTHER INFORMATION: "n" bases at various positions throughout the
OTHER INFORMATION: represent a, t, c or g
                                                                                                                                                                                                                                                                                                                               1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                     GCGCCATCGAGGTCGTATGGACGA 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
ORGANISM: Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 20.0%;
Best Local Similarity 62.4%;
Matches 502; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 4403765
                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-103-840A-2/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-103-840A-2
                                                                      1225
                                                                                                                                   1285
                                                                                                                                                                                                  1345
                                                                                                                                                                                                                                                                1405
                                                                                                                                                                                                                                                                                                953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2153023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 928
                                                                á
     à
                                                                                               d
                                                                                                                                å
                                                                                                                                                         셤
                                                                                                                                                                                             οy
                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dp
```

2152544

747

σ

Thu

g ð 셤 à

ð

à

ò

ð a ŏ ð

à

ò

```
1046 CATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGGACCT 1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1286 CATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACA 1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1346 TGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGA 1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 654 GGAGAACCCGCTGGCCGCGGTGCAGATGGGGCTGATCTACGTGAACCCGGAGGCGCCGAA 713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                236 TGACGCGGGACATCGAGGAAGTGATGACCACCTCGCAGCCGTGGTGGCCCGCCGACTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 808 GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAA--TGTTGCCCTTGAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                536 GATGGCCTTCAAGACGTTCGGCTTCGG--GCGTCGACCAGTGGGAGACCGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1106 GGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACGGGAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1226 TGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          868 ATGATGCCCGGGGAGCCCCAGTGGTGGTCACCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             688 ATCCCTGGGGGCCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      594 GGTCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGACGGTTACAGCGTAAGCGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                          7;
                                                                                                                                                                                                                                                                                                                                                                                                      Length 2221;
                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/418,782
                                                                                                                                                                                                                                                                                                                                                                                                    Score 274.2; DB 1;
Pred. No. 1.6e-79;
0; Mismatches 303;
                                                                                          ATTORNET/AGENT INPORMATION:
NAME: WOESSIGT, WASTEN D.
REGISTRATION NUMBER: 30,440
REFERENCE/DOCKET NUMBER: 150.
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-339-3061
                                                                                                                                                                                                         TELEFAX: 612-339-3061
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                    18.4%;
                                                                                                                                                                                                                                                                  LENGTH: 2221 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                           FILING DATE:
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                             ; MOLECULE TYPE: DNA
US-08-418-782-2
                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Simi
Matches 493;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                            2155883 TGACGCGGGACATCGAGGAAGTGATGACCACCTCGCAGCCGTGGTGGCCCGCCGACTACG 2155824
                                                                                                                                                                                                                                                                                    2155643 GCAAGAAGCTCTCATGGGGGGACCTGATTTTCGCCGGCAACTGCGCGCTGGAATCGA 2155584
                                                                                                                                                                                                                                                                                                                                                               2155583 TGGGCTTCAAGACGTTCGGCTTCGGCCGGGTCGACCAGTGGGGAGCCCGATGAGG 2155524
                                                                                                                                                                                                                                                                                                                                                                                                                                          2155463 TGGAGAACCCGCTGGCCGCGTGCAGATGGGGCTGATCTACGTGAACCCGGAGGGGCCGA 2155404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2155403 ACGCCAACCCCGACCCCATGCCGCGCGCGCGCGCACATTCGCGAGACGTTTCGCCCATGG 2155344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2155343 CCAFGAACGACGTCGAAACAGCGGCGCFGATCGFCGGCGGTCACACTTTCGGTAAGACCC 2155284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2155283 ATGGCGCCG---GCCCGGCCGATCTGGTCGGCCCCGAACCCGAGGCTGCTCGCGCGGAGC 2155227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1155226 AGATGGGCTTGGGCTGGAAGAGCTCGTATGGCACCGGAACCGGTAAGGACGCGATCACCA 2155167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                  GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                           TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                    1108 TATACTGGGGGCCTGACAACACCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1165 TTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTATGTCAATCCTGAAGGCCCCG 1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                         CGGATAACGTTAATCTGGATAAAGCCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG 987
                                     GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                           Sequence 2, Application US/08418782
Patent No. 5658733
GENERAL INFORMATION:
APPLICANT: Cockerill, Franklin R.
APPLICANT: Kline, Bruce C.
APPLICANT: MIL, James R.
APPLICANT: Ull, James R.
TITLE OF INVENTION: Of M. Tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E: Schwegman, Lundberg & Woessner
3500 IDS Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2155166 GCGCCATCGAGGTCGTATGGACGA 2155143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS:
ADDRESSEE: Schwegman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minneapolis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     55402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 11
US-08-418-782-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: N
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1405
                                                                                                                                                                                                                                                                                                                                           1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1345
                                     808
                                                                                                                                                                                         928
                                                                                                                                                                                                                                                                  988
                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
```

1045

535

235

747

295

807

355

927

867

415 987 475 1165

653

1285

```
GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAA--TGTTGCCCTTGAATC 1045
                                                                                                                                       1046 CATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACT 1105
                                                                                                                                                                                                                                                                                     1166 TCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTATGTCAATCCTGAAGGCCCCGG 1225
                                                                                                                                                                                                                GGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACGGGAAACT 1165
                                                                                                                                                                                                                                                                                                                                                            1226 TGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGC 1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1406 GCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAG 1465
               476 GCAAGAAGCTCTCATGGGCGGACCTGATTGTTTCGCCGGCAACCGCTGCGCTCGGAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                 1286 CATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACA
                                                                                                                                                                                                                                                 594 GGTCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGACGGTTACAGGGGTAAGCGATCT
                                                                                                                                                                                                                                                                                                                                                                                 1346 TGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of Isoniazid Resistant Strains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Mueting, Raasch & Gebhardt, P.A.
STREET: 119 No. 5922575th Fourth Street, Ste. 203
CITY: Minneapolis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2, Application US/0885219
Patent No. 5922575
GENERAL INFORMATION:
APPLICANT: Cockerill, Franklin R.
APPLICANT: Kline, Bruce C.
TITLE OF INVENTION: Detection of Isoniazi
TITLE OF INVENTION: Detection of Sequence C.
NUMBER OF SEQUENCES: 22
COMPRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1466 TGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       951 CGGCATCGAGGTCGTATGGACGA 973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PATCHIN RELEASE #1.0, CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/852,219
FILING DATE: 07-May-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: Sandberg, Victoria A.
REGISTRATION NUMBER: 41,287
REFERENCE/DOCKET NUMBER: 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION: TELEPHONE: 612-305-1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: USA
ZIP: 55401
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy d.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-852-219-2
                                                                                                                                                                                                                1106
                                                                  988
                                                               ö
                                                                                                 셤
                                                                                                                                         ð
                                                                                                                                                                      q
                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                     ä
                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
1406 GCAGGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAG 1465
                        688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG 807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   808 GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCACTACGGGCGCTGTTTATCCGGATGGCGTGGCACGCTGCCGGCACCTACGCCATCC 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG 987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7;
                                                                                                                                                                                                                                                        APPLICANT: COCKERILL, FRANKLIN R.
APPLICANT: KLINE, BRUCE C.
APPLICANT: UHL, JAMES R.
TITLE OF INVENTION: DETECTION OF ISONIAZID RESISTANT STRAINS
TITLE OF INVENTION: OF M. TUBERCULOSIS
NUMBER OF SEQUENCES: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1; Length 2221;
                                                                                                                                                                                                                                                                                                                                                                                     SEE: SCHWEGMAN, LUNDBERG & WOESSNER, P.A.: 3500 IDS CENTER
MINNEAPOLIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/228,662
FILING DATE: 18-APR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              303;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66-79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 274.2; D
Pred. No. 1.6e-
0; Mismatches
                                                                    TGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                         951 CGCCATCGAGGTCGTATGGACGA 973
                                                                                                                                                                                US-08-228-662-2; Sequence 2, Application US/08228662; Patent No. 5688639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
NAME: WGESSNER, WARREN D.
REGISTATION NUMBER: 30,440
REFERENCE/DOCKET NUMBER: 150,2
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-339-0331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 18.4%;
Best Local Similarity 61.4%;
Matches 493; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2221 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 612-339-3061
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
ADDRESSEE: SCHWEGMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: MINNEAPOLI:
STATE: MINNESOTA
                                                                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: COCKER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                      STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-228-662-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             898
                                g
                                                                    ò
                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1285
                                                                                                                                                             ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCCAGTATTCCTGGGGAGACCTGATGGTCCTGATA--TGTTGCCCTTGAATC 1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGGACCT 1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1166 TCAGAAACCTCTTGCCGCCACGCAGGATGGGACTTATTATGTCAATCCTGAAGGCCCCGG 1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACA 1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGA 1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAG 1465
                                                                                                                                                                                                      867
                                                                                                                                                                                                                                                                                                             415
                                                                                                                                                                                                                                                                                                                                                                                                                    CCGACAACGCCAGCTTGGACAAGGCGCCCGCTGCTGTGGCCGGTCAAGAAGAAGTACG 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     536 GATGGGCTTCAAGACGTTCGGGTTCGGC--GCGTCGACCAGTGGGAGCCGATGA 593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGTCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGACGGTTACAGCGTAAGCGATCT 653
                                                                                                                                                                                                                                                                                                                                                   ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC 927
                                                                                                                                                                                                                                                                                                                                                                                                      CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATACG 987
                                                                                                                                                                                                                                                                                                                                                                 688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                              GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   476 GCAAGAAGCTCTCATGGGCGGACCTGATTGTTTTCGCCGGCAACCGCTGCGCTCGGAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAAACGGGGATAAAACGGGAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1226 TGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGC
                                                                                                                                                               Gaps
                                                                                                                                                            7;
                                                                                                                                 Length 2221;
                                                                                                                                                            Indels
                                                                                                                                 Score 274.2; DB 2;
Pred. No. 1.6e-79;
0; Mismatches 303;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    951 CGCCATCGAGGTCGTATGGACGA 973
                                                                                                                                 Query Match 18.4%;
Best Local Similarity 61.4%;
Matches 493; Conservative
           INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 2221 base pairs
612-305-1228
                                                  TYPE: nucleic acid
STRANDEDNESS: single
                                                                              TOPOLOGY: linear MOLECULE TYPE: DNA
TELEFAX:
                                                                                                       US-08-852-219-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1466
                                                                                                                                                                                                                                                                                              808
                                                                                                                                                                                                                                                                                                                                                 868
                                                                                                                                                                                                                                                                                                                                                                            356
                                                                                                                                                                                                                                                                                                                                                                                                      928
                                                                                                                                                                                                                                                                                                                                                                                                                               416
                                                                                                                                                                                                                                                                                                                                                                                                                                                          988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           834
                                                                                                                                                                                                                                                                                                                    g .
                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               윱
                                                                                                                                                                                      õ
                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
```

RESULT · 14 US-08-459-499-8

```
Nucleic Acid Probes, Sequences, and Methods
for Detecting Mycobacterium Tuberculosis Resistant to Isoni
Amended)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2145 ACCCGATGGGTGCGGCGTTCGACTATGCCGCGGAGGTCGCGACCAGTCGACTTGACGCCC 2204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           748 TGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          808 GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          868 ATGATGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 4794;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                              ADDRESSEE: Finnegan, Henderson, Farabow, Garrett
ADDRESSEE: Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, Version #1.3 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/459,499
FILING DATE: 02-UNN-1995
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 274.2; DB 2;
Pred. No. 2.5e-79;
0; Mismatches 303;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REGISTRATION NUMBER: 25,146
REFERENCE/TOCKET NUMBER: 03495.0110-03000
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRICE APPLICATION DIA:
APPLICATION DATA:
APPLICATION NUMBER: US 07/875,940
FILING DATE: 30-APR-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/929,206
FILING DATE: 27-MAY-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/029,655
FILING DATE: 11-MAR-1993
ATTORNEY,AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC Compatible OPERATING SYSTEM: PC-DOS/MS-DOS
Sequence 8, Application US/08459499 Patent No. 5871912 GENERAL INFORMATION:
                                                                           APPLICANT: Cole, Stewart T.
APPLICANT: Young, Douglas B.
APPLICANT: Zhang, Ying
TITLE OF INVENTION: Nucleic Ac
TITLE OF INVENTION: Amended)
NUMBER OF SEQUENCES: 17
                                                                                                                                                                                                                                                                                     1300 I Street, N.W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 61.4%;
Matches 493; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: 8:
                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Meyers, Kenneth J
REGISTRATION NUMBER: 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4794 base pairs
                                                          APPLICANT: Heym, Beate
APPLICANT: Cole, Stewart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             202-408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                           Washington
                                                                                                                                                                                                                                                                                                                                                                     20005-3315
                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-459-499-8
                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                          STREET:
                                                                                                                                                                                                                                                                                                                                STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
```

```
1046 CATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCT 1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2505 GATGGCCTTCAAGACGTTCGGCTTCGG--GCGTCGACCAGTGGGAGACCGATGA 2562
                                                                                                                                                                                                                                                                                                                                                                                                                                         CATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGATACATTTGGTAAAGCACA 1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1346 TGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGA 1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2803 redecece--- accedecedareregicedececedadecrecideneceredade
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1406 GCAGGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAG 1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               688 ATCCCIGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                        GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               988 GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAA--TGTTGCCCTTGAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACGGGAAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1226 TGGAAAACCAGATCCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTCACGTATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2683 CGCCAACCCGGACCCCATGGCCGCGGCGTCGACATTCGCGAGACGTTTCGGCGCATGGC
                                                                                                                                                                                                                                                    Length 4795;
                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                 18.4%; Score 274.2; DB 2;
                                                                                                                                                                                                                                                                .5e-79;
es 303;
                                                       02356.0068-00000
                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1466 TGCCTGGAAGGAGCCTGGTCGA 1488
                    NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFRENCE/DOCKET NUMBER: 02356
TELEPHONE: (202) 408-4400
TELEPHONE: (202) 408-4400
INFORMATION FOR SEQ ID NO: 45:
SEQUENCE CHARACTERISTICS:
LENGTH: 4795 base pairs
                                                                                                                                                                                                      DNA (genomic)
                                                                                                                                                                                                                                                               llarity 61.4%;
Conservative
         ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                           single
                                                                                                                                                          nucleic acid
                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                             Best Local Similarity
Matches 493; Conserv
                                                                                                                                                                       STRANDEDNESS:
                                                                                                                                                                                                    MOLECULE TYPE:
                                                                                                                                                                                                               US-08-313-185-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                     2265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   898
                                                                                                                                                                                                                                                                                                                                                                                            2205
                                                                                                                                                                                                                                                                                                                                                                                                                        808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           928
                                                                                                                                                                                                                                                                                                                                                                748
                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2860
                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 οý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                          1105
                                                                                                                                                                                   1165
                                                                                                                                                                                                                                                                                                                                 2742
                                                                                                                                                                                                               2622
                                                                                                                                                                                                                                                                                                                                                     1286 CATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGCATACATTTGGTAAAGCACA 1345
                                                                          1346 TGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGA 1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1406 GCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAG 1465
                                                                                                                                                                                                                                                                                                                                                                        2803 rececce---ecceeccearcreercecceceaacceaagerrecreage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                          2385 CCGACAACGCCAGCTTGGACAAGGCGCGCCGGCTGCTGTGGCCGGTCAAGAAGAAGTACG
                                                         GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAA--TGTTGCCCTTGAATC
                                                                                                                    CATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCGGACCT
                                                                                                                                 GGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACGGGATAAAACGGGAAAACT
                                                                                                                                                                                                                                                      GGTCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGACGGTTACAGGGTAAGCGATCT
                                                                                                                                                                                                                                                                                                                          2683 CGCCAACCCGGACCCCATGGCCGCGGCGGTCGACATTCGCGAGACGTTTCGGCGCATGGC
                                                                                                                                                                                                                                                                                            1226 TGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Telenti, Amailo
APPLICANT: Bodmer, Thomas
TITLE OF INVENTION: Rapid Detection of Antibiotic Resistance
TITLE OF INVENTION: In Mycobacterium Tuberculosis
TITLE OF SECULOSIS 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE: Finnegan, Henderson, Farabow, Garrett
ADDRESSEE: Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1466 TGGCCTGGAAGGAGCCTGGTCGA J488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2920 CGGCATCGAGGTCGTATGGACGA 2942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/313,185
FILING DATE: 12-0CT-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 45, Application US/08313185
Patent No. 5851763
GENERAL INFORMATION:
APPLICANT: Heym, Beate
APPLICANT: Cole, Stewart
APPLICANT: Young, Douglas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: 1300 I Street, N.W CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Zhang, Ying
APPLICANT: Honore, Nadine
APPLICANT: Telenti, Amalio
APPLICANT: Bodmer, Thomas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OPERATING SYSTEM:
SOFTWARE: PatentI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: YOUR APPLICANT: Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE: D.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-313-185-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                    1046
                                                                                                                                                                           1106
                                                                                                                                                                                                         2563
                                                                                   g
                          a
                                                         à
                                                                                                                  ò
                                                                                                                                           g
                                                                                                                                                                        ò
                                                                                                                                                                                                      g
                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                 요
                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
```

2444

987

927

Gaps 7;

셤

```
1045
                                                                                                                                                                                       1105
                                                                                                                                                                                                                                                                 1165
                                                                                                                                                                                                                                                                                                     2622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1465
                                                                                                                                                      2504
                                                                                                                                                                                                                                                                                                                                                         2325 ACGACGGCCGCGGCGCCCGGGGGGGCGCATGCAGCGGTTCGCGCCGCTTAACAGCTGGC 2384
                                                           988 GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAA--TGTTGCCCTTGAATC
                                                                                                                                                  2445 GCAAGAAGCTCTCATGGGCGGACCTGATTGTTTTCGCCGGCAACCGCTGCGCTCGGAATC
                                                                                                                                                                                         1046 CATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGGACCT
                                                                                                                                                                                                                                                               1106 GGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACG
                                                                                                                                                                                                                                                                                    1286 CATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1406 GCAGGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1346 TGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGA
                                        928 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                              1226 IGGAAAACCAGAICCICIGGCIICCGCGAAAGAIAICAGGGAAGCIITITCACGIAIGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READBLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
COMPUTER: IBM Compatible
OPERATING SYSTEM: Windows95
SOFTWARE: FastSEQ for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/674,887A
FILING DATE: US-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RADKESSEE: Fish & Richardson P.C. STREET: 4225 Executive Square, Suite 1400 CITY: La Jolla STATE: CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1466 TGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2920 CGCCATCGAGGTCGTATGGACGA 2942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 5, Application US/08674887A
Patent No. 593300
GENERAL INFORMATION:
APPLICANT: Robertson, Dan E.
APPLICANT: Sanyal, Indrajit
APPLICANT: AADAIKARI, ROBERT S.
TITLE OF INVENTION: CATALASES
NUMBER OF SEQUENCES: 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Haile, Ph.D., Lisa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Haile, Ph.D., Liss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Ri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ΩS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-674-887A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                           g
                                                                                                            ŏ
                                                                                                                                                g
                                                                                                                                                                                       ò
                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG 807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     868 ATGATGGCCGGGGGCGCCCAGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC 927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          688 ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           808 GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            =
=
=
=
=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                 APPLICANT: Cole, Stewart
APPLICANT: Cole, Stewart
APPLICANT: Lyoung, Douglas
APPLICANT: Lyoung, Ving
APPLICANT: Honore, Nadine
APPLICANT: Honore, Nadine
APPLICANT: Homore, Thomas
TITLE OF INVENTION: Rapid Detection of Antibiotic Resistance
TITLE OF INVENTION: In Mycobacterium Tuberculosis
NUMBER OF SEQUENCES: 66
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 4795;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Finnegan, Henderson, Farabow, Garrett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 18.4%; Score 274.2; DB 3; Best Local Similarity 61.4%; Pred. No. 2.5e-79; Matches 493; Conservative 0; Mismatches 303;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02356.0068-00000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2920 CGGCATCGAGGTCGTATGGACGA 2942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/082,614A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/313,185
FILING DATE: 12-OCT-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                        Sequence 45, Application US/09082614A
Patent No. 6124098
GENERAL INFORMATION:
APPLICANT: HEYM, Beate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RECISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 02356
TELECOMMUNICATION: INFORMATION:
TELEPHONE: (202) 408-4400
INFORMATION: FOR SEQ ID NO: 45:
SEQUENCE CHARACTERISTICS:
LENGTH: 4795 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DX
                                                                                                                                                                                                                                                                                                                                                                                                            1300 I Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Meyers, Kenneth J
                                                                                                                                                                      Heym, Beate
Cole, Stewart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                            Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                               Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE
                                                                                          US-09-082-614A-45
                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-082-614A-45
                                                                                                                                                                                                                                                                                                                                                                                                            STREET:
CITY: Wa
                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE:
                                                                           RESULT 16
```

셤 ð 셤 à g

```
682 AATCAAATCCCTGGGGGGTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGG 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                742 AGGCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGG 801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACA 861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACTGGGGGCACTACGCGGTTTGATGATCCGTATGGCTTGGCACTCCCCTGGCACCTACC 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGACATATGATGGCCGGGGGGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACA 921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       922 GCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAA
              1441 GAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGAC 1489
                                  24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 2262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 15.1%; Score 224.6; DB 3; Best Local Similarity 57.4%; Pred. No. 3.1e-63; Matches 476; Conservative 0; Mismatches 329;
                                                                                                                                                                                                                                                             BAIN, GILFILLAN,
& OLSTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              331400-55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/951,844
FILING DATE:
                                                                                                                                                                                                                                                       ADDRESSEE: CARELLA, BYRNE, BAIN,
ADDRESSEE: CECCHI, STEWART & OLS
STREET: 6 BECKER FARM ROAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION: 435
PRIOR APPLICATION DATA:
APPLICATON DATA:
FILING DATE: July 3, 1996
ATTONREY/ARBY THORNATION:
NAME: Charles J. Herron
REGISTRATION NUMBER: 28,019
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-994-1700
                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 INCH DISKETTE
COMPUTER: IBM PS/2
                                                                                                                                   Sequence 5, Application US/08951844 Patent No. 6074860 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; MOLECULE TYPE: Oligonucleotide US-08-951-844-5
                                                                                                                                                                                    APPLICANT: Robertson et al.
TITLE OF INVENTION: Catalases
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                         OPERATING SYSTEM: MS-DOS SOFTWARE: WORD PERFECT 5.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2262 NUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: 201-994-1744
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 2262 NUCLEOTII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUCLEIC ACID
DEDNESS: SINGLE
                                                                                                                                                                                                                                                                                                          CITY: ROSELAND
STATE: NEW JERSEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LINEAR
                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                               07068
                                                                                                                  US-08-951-844-5
                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  398
                ð
                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  982 AATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTG 1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --AACCGGGATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTA 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1042 AATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCGG 1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1201 TITATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAGATA 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1261 TCAGGGAAGCTTTTTCACGTATGGCCATGATGAGGAGACTGTGGGCCCTGATCGCGG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         741
                                                                                                                                                                                                                                                                                                                                                                                                              277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           802 ATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACA 861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAA 981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1321 GAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAG 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                        742 AGGCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGG 801
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGACATATGATGGCCGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACA 921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    578 AGICCATGGGCTTACCTGCTTACGGCTTCTTTCGGCCGCGTCGATATTTGGGAACCCG 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     698 GCGACGTGAACAAGCCAAGAACCATGGAAAACCCGCTGGCGGCTGTCCAAATGGGTCTGA 757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  758 TCTATGTGAACCGGGAAGGTGTTAACGGCCACCTGATCCGCTGAGAACCGCACAGCAGG 817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCCAAAAAGCCTCTGACGTTGAAAACCAGGGCTTAGGTTGGGGCAACCCCAACATGCAGG 994
                                                                                                                                                                                                                                                                                                                                                                    682 AATCAAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGG
                                                                                                                                                                                                                                                                                                                                                                                          398 GTATTGCTGATGGCCGTGGGGGGGGTGGTACCGGAAGCCAGCGCTTTGCACCGCTCAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGCCACACACCGTCGGTAATTGTCACGGTAATGGCAATGCCTCTGCGT---TAGCCCCTG
                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                       Indels 24;
                                                                                                                                                                                                                                                                                                     Score 224.6; DB 2; Length 2262; Pred. No. 3.1e-63; 0; Mismatches 329; Indels 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1102 ACCTGG---TATACTGGGGCCTGACAACAAGCCTCTTGCAGAT-----
 38,347
FR: 09015/002001
REGISTRATION NUMBER: 38,347
REFERENCE/DOCKET NUMBER: 0901
TELECHONIC 18FORMATION:
TELEPHONE: 619/678-5070
TELEFRAX: 619/678-5070
TELEFRAX: 619/678-5099
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 2262 base pairs
TYPE: nucleic acid
STRANDENESS: double
                                                                                                                                                                                                                               Coding Sequence 1...2259
                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 57.4%;
Matches 476; Conservative
                                                                                                                                                                                linear
                                                                                                                                                                                           MOLECULE TYPE:
                                                                                                                                                                                                                            ; NAME/KEY:
; LOCATION:
US-08-674-887A-5
                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     818
                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
```

ç

ò g ò 셤 ð g ë

Gaps

24;

277 801 337 861 397 921 457 981 517

```
AATACGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTCCCCTTG 1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1201 TITATGICAATCCIGAAGGCCCCGGTGGAAAACCAGAICCTCTGGCTTCCGCGAAAGATA 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1321 GAGGCCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAG 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1042 AATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCGG 1101
                                                                                                                                                                                                                                                      742 AGGCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGG
                                                                                                                                                                                                                                                                                                                                                           802 ATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACA
                                                                                                                                                                                                                                                                                                                                                                                                                          GGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1143 -- AACCGGGATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 698 GCGACGTGAACAAGCCAGAGACCATGGAAAACCCGCTGGCGGCTGTCCAAATGGGTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1261 TCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      878 GCGCCACACCGTCGGTAATTGTCACGGTAATGGCAATGCCTCTGCGT---TAGCCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    935 ACCCAAAAGCCTCTGACGTTGAAAACCAGGGCTTAGGTTGGGGCAACCCCAACATGCAGG
                                                                                                                                                                                                                                    682 AATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1441 GAAACGCCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGAC 1489
                                                                                                                                                                          Length 2262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1102 ACCTGG---TATACTGGGGGCCTGACAACAAGCCTCTTGCAGAT----
                                                                                                                                                                       Score 224.6; DB 4; Length 2
Pred. No. 3.1e-63;
0; Mismatches 329; Indels
                                                                                                           Coding Sequence 1...2259
                                                                                                                                                                     Query Match 15.1%;
Best Local Similarity 57.4%;
Matches 476; Conservative
SEQUENCE CHARACTERISTICS:
LENGTH: 2262 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
                                                                              MOLECULE TYPE: CDNA
                                                                                                           NAME/KEY:
LOCATION:
                                                                                                                               ;
US-09-412-347-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              995
                                                                                                                                                                                                                                                                                                                                                                                                                         862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 20
                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                       1440
                                                                                                                                                                                                                                                                                                             1320
1142
                                                                                                                                                                                    1143 -- AACCGGGATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGGAGTGGGACTTA 1200
                                                                                                                                                                                                                                                 TTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATA 1260
                                                                                                                                                                                                                                                                                                                                                                           GAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAG 1380
                                                                                                                                                                                                                                                                                817
                                                                                                                                                                                                                                                                                                                                           877
                                                                                                                                                                                                                                                                                                                                                                                                          934
                                                             AATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGG
                                                                                   578 AGICCAIGGGCITACCIGCTIACGGCTICITITITICGGCCGCGTCGAIATTIGGGAACCCG
                                                                                                                       TCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGG
                                                                                                                                                                                                                                                                                                                                           818 TACTTGAAACCTTCGCCCGTATGGCGATGAACGACGAAAAAACCGCAGCCCTCACAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                       878 GCGGCCACACCGTCGGTAATTGTCACGGTAATGGCAATGCCTCTGCGT---TAGCCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                     1441 GAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGAC 1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ISEE: Fish & Richardson P.C.
1. 4225 Executive Square, Suite 1400
La Jolla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OPERATING SYSTEM: Windows95
SOFTWARE: FastSEO for Windows Version 2.0
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Haile, Ph.D., Lisa A.
REGISTRATION NUMBER: 38,347
REFERENCE/DOCKET NUMBER: 09015/002001
TELECOMUNICATION INFORMATION:
TELEPHONE: 619/678-5070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/09/412,347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: ROBERTSON, Dan E.
APPLICANT: Sanyal, Indrajit.
APPLICANT: Adhikari, Robert S.
TITLE OF INVENTION: CATALASES
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/674,887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 5, Application US/09412347
Patent No. 6410290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM COMPATIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEC ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           619/678-5099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FRY: US
92037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-412-347-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: I
                                                             1042
                                                                                                                                                                                                                                                 1201
                                                                                                                                                                                                                                                                                                             1261
                                                                                                                                                                                                                                                                                                                                                                           1321
                                                                                        g
                                                                                                                                                    셤
                                                                                                                                                                                  ò
                                                                                                                                                                                                                 윱
                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                             ò
                                                                                                                        ò
```

1440

934

1200

757

577

637

1320

877

```
TITLE OF INVENTION: METHOD FOR THE INTRODUCTION OF GENETIC PARTHENOCARPY IN TITLE OF INVENTION: PLANTS
FILE REFERENCE: INTRO GENETIC PARTHENOCAPRI IN PLANTS
CURRENT APPLICATION NUMBER: US/09/125,287B
CURRENT FILING DATE: 1998-11-09
EARLIER APPLICATION NUMBER: PCT/IL97/00051
EARLIER FILING DATE: 1997-02-13
NUMBER OF SEQ ID NOS: 6
SOFTWARE: PATENTIN Ver. 2.0
SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3946 AGTIGACATITCAAGIATITAGGCCCAATITICITAGCICGGAATITITITAAAICITIT 4005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4006 AAATATTTTGATTTATACTACTTATTACGTAGTTTTCATAAGTATAAATTTCATA 4065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4066 TATGAATTCACGGTCAAAAATTTAAAGTTTAATCTAATGCCACATAACTTAGAACAT 4125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1126 ACAAATATCTTTTGATCAAGATTTGGCAATTCGTATACAATAATCTTTAGCAAGTAATA 4185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 604 CCGCTGATAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACTCCTC 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             664 IGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGAT 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         724 TICAACAGCIGGATAIGGAGGCICIGAAAAAAGAIAICAAAGAITIGCIGACAACIICCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        424 CTTAGTATTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             484 AAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           544 AAAAAACTCTICCIGITCIGAIICITCIGGCGCIAICGGGGGAGCITITCIACCGCTGIAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 4518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 38.8; DB 3; Length 4 Pred. No. 0.045; 0; Mismatches 217; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: unsure

! LOCATION: (6)..(191)

! OTHER INFORMATION: "n"'s are any nucleic residue

US-09-125-287-2
                                                                     1450
                                                                                       1085 RRRRRRRRRRRRRRRRRATCGCAA 1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                784 AGGATTGGTGCCCTGCGGATTATGGT 809
                                                                 1425 AATAAATGTGGTACAGGAAACGGCAA
                                                                                                                                                                                                   Sequence 2, Application US/09125287B Patent No. 6114602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1, Application US/09125287B
Patent No. 6114602
GENERAL INFORMATION:
APPLICANT: BARG, RIVKa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: TPRP-F1 PROMOTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best_Local Similarity 43.8
Matches 169; Conservative
                                                                                                                                                                                                                                                           APPLICANT: BARG, Rivka APPLICANT: SALTS, Tehiam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 4518
                                                                                                                                                                                 US-09-125-287-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 22
US-09-125-287-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                           셤
                                                                 ò
                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1065 GGATITGCTGGCGGAAGAAGAAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCTGAC 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1125 AACAAGCCICITGCAGAIAACGGGGAIAAAAACGGGAAACIICAGAAACCICITGCCGCC 1184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1185 ACGCAGATGGGACTTATTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTG 1244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1245 GCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACT 1304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGGCCCTGATCGCGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAA 1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGGATGGAAA 1424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 7218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 3.1%; Pred. No. 5.6e-05;
Matches 12; Conservative 217; Mismatches 157; Indels
                                                                                                                                                                                                                                                                                                                                                                              SPETWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
                                                                     APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 48; DB 1;
Pred. No. 5.6e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE/DOCKET NUMBER: 30472/114 IMMU TELECOMMUNICATION INFORMATION: TELEPHONE: (703)836-9300
                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road, Suite 500
                                                                                                                                                                                                                                                   STAIL.
COUNTRY: USA
ZIP: 22313-0299
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
"WOTTER: IBM PC COMpatible
"WOTTER: TRM PC COMpatible
"WOTTER: "WOTTER: "ARE #1.0,"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: EP 91 114 300.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/935,313
FILING DATE:
                   Sequence 14, Application US/08232463 Patent No. 5570367 GENERAL INFORMATION:
APPLICANT: DORNER, F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEX: 899149
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29,768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 26-AGG-1991
ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-232-463-14
                                                                                                                                                                                                                               Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
US-08-232-463-14/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX:
                                                                                                                                                                                                                               CITY:
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
```

ö

```
579 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98104-7092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 0. CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 6300 C
CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 24
US-09-062-451-147/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-991-789A-147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4007 AAATATTTTGATTTATACTACTTATTACGTAGTTTTCATAAGTATAAATTTCATTA 4066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4067 TAIGAATICACGGICAAAATIITAAAGIITATITAACCAAIGCCACATAACITAGAACAI 4126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3947 AGTIGACATITCAAGTAITAGGCCCCAATITICITAGCTCGGAATITITITAAATCTCITI 4006
APPLICANT: SALTS, Tehiam
TITLE OF INVENTION: METHOD FOR THE INTRODUCTION OF GENETIC PARTHENOCARPY IN
TITLE OF INVENTION: PLANTS
FILE REFERENCE: INTRO GENETIC PARTHENOCAPRI IN PLANTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    484 AAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATAA 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                424 CITAGIAITITITGICIGIAGIAICIAICCCAGCAATAGGIAIAICCIGIIGCAICAAIA 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       544 AAAAAACTCTTCCTGTTCTGATTCTTGGGGGCTATCGGGGGAGCTTTTCTACCGCTGTAG 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      604 CCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACTCCTC 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        664 TGAGATTACACACCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGAT 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         724 TTCAACAGCTGGATATGGAGGCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCC 783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Smith, John M.
Reed, Steven G.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TREATMENT AND DIAGNOSIS OF BREAST CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                               Length 12839;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    217; Indels
                                     CURRENT APPLICATION UNDBER: US/09/125,287B
CURRENT APPLICATION NUMBER: US/09/125,287B
CURRENT FILING DATE: 1998-11-09
EARLIER APPLICATION NUMBER: PCT/IL97/00051
EARLIER FILING DATE: 1997-02-13
NUMBER OF SEQ ID NOS: 6
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 1
LENGHI: 12839
TVDF: NOT.
                                                                                                                                                                                                                                                                                                                                                                                                                          Score 38.8; DB 3;
Pred. No. 0.083;
0; Mismatches 217;
                                                                                                                                                                                                                                                                                                                        ; NAME/KEY: unsure

; LOCATION: (5)..(11322)

; OTHER INFORMATION: "n"'s are any nucleic residue

US-09-125-287-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES: 292
CORRESPONDENCE ADDRESSE: Seed IP Law Group
STREET: 701 Fifth Avenue, Suite 6300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4187 TGTATACCAACATTATGTAATATGAT 4212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          784 AGGATTGGTGCCCTGCGGATTATGGT 809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 147, Application US/08991789A Patent No. 6225054 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Frudakis, Tony N.
                                                                                                                                                                                                                                                        TYPE: DNA
ORGANISM: TPRP-F1 GENOMIC CLONE
                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 2.6%;
Best Local Similarity 43.8%;
Matches 169; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-991-789A-147/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
```

```
1316 CGCGGGAGGCCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGG 1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 147, Application US/09062451
Patent No. 6344550
GENERAL INFORMATION:
APPLICANT: Frudakis, Tony N.
APPLICANT: Smith, John M.
APPLICANT: Reed, Steven G.
TITLE OF INVEWTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: TREATMENT AND DIAGNOSIS OF BREAST CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1376 CGCAGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGG 1417
                     SYSTEM: PC-DOS/MS-DOS
PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGACATCACCGTGTACCAGCAGAGGTGGAGGAGGTGG 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SYSTEM: PC-DOS/MS-DOS
PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEED and BERRY LLP
6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 4;
                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: 210121.419C3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 2.3%; Score 33.8; DB Best Local Similarity 57.8%; Pred. No. 0.57; Matches 59; Conservative 0; Mismatches
                                                                                    APPLICATION NUMBER: US/08/991,789A
FILING DATE: 11-Dec-1997
CLASSIFICATION: <UNKNOWN>
                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY: linear
SEQUENCE DESCRIPTION: SEQ ID NO: 147:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         210121.41902
                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Potter, Jane E. R.
REGISTRATION NUMBER: 33,332
IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     UMBER: US/09/062,451
04-APR-1997
                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                   TELEFAX: (206) 682-6031 INFORMATION FOR SEQ ID NO: 147:
                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 579 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 147:
                                                                   CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER: 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES: CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC OPERATING SYSTEM:
```

```
Query Match
Best Local Similarity
Matches 77; Conserve
                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-134-001C-2054
                                        US-08-716-351A-5/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                               1316 CGCGGGAGGGCATACATTTGGTAAAGCACCATGGTGCAGCGTCTCCTGAAAAATGTATTGG 1375
                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1316 CGCGGGAGGCCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGG 1375
                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Frudakis, Tony N.
Smith, John M.
Reed, Steven G.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TREATMENT AND DIAGNOSIS OF BREAST CANCER
                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: Seed Intellectual Property Law Group PLLC
STREET: 701 Fifth Avenue, Sulte 6300
                                                                               Score 33.8; DB 4; Length 579;
Pred. No. 0.57;
0; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 579;
                                                                                                                                                                                                                1376 CGCAGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGG 1417
                                                                                                                                                                                                                                       367 CTGACATCATCACGTGTACCAGCAGAGGTGGAGGACGTGG 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/598,326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1376 CGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Potter, Jane E.R.
REGISTRAILON NUMBER: 33,332
REFERENCE/DOCKET NUMBER: 210121.41901
TELECOMMUNICATION INFORMATION:
                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 33.8; D. Pred. No. 0.57 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear
SEQUENCE DESCRIPTION: SEQ ID NO: 147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                    Sequence 147, Application US/09598326
Patent No. 6423496
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 20-Jun-2000 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
LENGTH: 579 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: 147;
                                                                                 2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.3%;
Best Local Similarity 57.8%;
Matches 59; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
                                                                                                                 Conservative
                 single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: Seattle
TYPE: nucleic acid
STRANDEDNESS: sing
                                 linear
                                                                                               Similarity
                                                                                                                                                                                                                                                                                                  RESULT 25
US-09-598-326-147/c
                               ; TOPOLOGY:
US-09-062-451-147
                                                                                   Local S. ... 59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-598-326-147
                                                                                 Query Match
                                                                                               Best Loca
Matches
                                                                                                                                                                               a
                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
```

CTGACATCATCACGTGTACCAGAAGGTGGAGGACGTGG 326

367

셤

```
Sequence 2054, Application US/09134001C
Patent No. 6380370
GENERAL INFORMATION:
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCC TITLE OF INVENTION: EPIDERMIDIS FOR DIAGNOSTICS AND THERAPEUTICS
FILE REPERENCE: GTC-007
CURRENT APPLICATION NUMBER: US/09/134,001C
CURRENT FILING DATE: 1998-08-13
PRIOR PAPLICATION NUMBER: US 60/064,964
PRIOR FILING DATE: 1997-11-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1267 AAGCITITICACGIAIGGCCAIGGAIGAIGAGGAGACIGIGGCCCIGAICGCGGGAGGGC 1326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6662 AAGGITICTICAGAAIGGIAAIAGAIGCGGGGGAICAGCIGGACCIGGACACAGAAGICI 6603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1327 ATACATITGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTG 1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6602 TTAGACTGATTAAAAACTGAGGTGGAGGGCAGGGGTGAGGCCAGTGCTGCAGGCCCAC 6543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 10970;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /standard_name= "p537 retroviral vector"
                                                                                            Gibbon Ape Leukemia Virus-Based
Retroviral Vectors
                                                                                                                                                                                                         COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
PILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 33.8; DB 3;
Pred. No. 3.3;
0; Mismatches 72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1387 ATGGTGCACCTGTGGAGGAGCAGGGACTG 1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34,774
15280-128-1PC
                                                                                                                                                                                                                                                                                                                                                                                                            PCT/US94/03784
                                                 GENERAL
APPLICANT:
TITLE OF INVENTION: Gibbon Ape TITLE OF INVENTION: Retroviral Ver NUMBER OF SEQUENCES: 5
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
AMEDIUM TYPE: Floppy disk
AMEDIUM TYPE: Floppy disk
AMEDIUM TYPE: POOS/MS-DK
Sequence 5, Application US/08716351A
Patent No. 6033905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Bastian, Kevin L.
REGISTRATION NUMBER: 34,774
REFERENCE/DOCKET NUMBER: 1528
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 543-5603
INFORMATION FOR SEQ ID NO: 5:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 10970 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 06-APR-1994
ATTORNEY/AGENT INFORMATION:
NAME: Bastian, Kevin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
| COATION: 1.10970 |
| OTHER INFORMATION: /sta |
| OTHER INFORMATION: vect |
| US-08-716-351A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER:
```

```
RESULT 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1249 CCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGG 1308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1309 CCCTGATCGCGGGAGGCCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAT 1368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    929
                                                                                                                                                                                                                                                                                                                             557 ACTCCTCTGAGATTACACAGCCCTGAATCCAATCCCTGGGGGGCTGATTTTGATTATGCC 716
                                                                                                                                                                                                                                                                                        778 GATTTAAACGATGATTTTGAAGATTCTTTAGAGTATTTGGAGCCATTAGATCATGATGCA 837
                                                                                                                                                                                                                                                                                                                                                             838 TATATCGTGAGGTTAAACTTTACTGGTGAAATACGACTGAGCCTATCATATATG 897
                                                                                                                                                                                                                                                   597 GCTGTAGCCGCTGATAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTA
                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                       898 ACGAAGACGCATAACATAGATGTGAATATTCTTGAAGCAGATATTAAGAAT 948
                                                                                                                                                                                                                                                                                                                                                                                                    717 ACCAGATITCAACAGCIGGAIAIGGAGGCICTGAAAAAAAGAIAICAAAGAI 767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                          Score 33.4; DB 4; Length 1074;
Pred. No. 1.1;
0; Mismatches 86; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 6328;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Seellg, Hans Peter
APPLICANT: Renz, Mafred
TITLE OF INVENTION: DERMATOMYOSITIS-SPECIFIC AUTO-ANTIGEN
FILE REFERENCE: 8484-0030-599
CURRENT APPLICATION NUMBER: US/08/913,832A
CURRENT APPLICATION NUMBER: PCT/DE96/00444
PRIOR PLILING DATE: 1998-01-12
PRIOR PLILING DATE: 1998-03-08
NUMBER OF SEO ID NOS: 2
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1369 GTATTGGCGCAGGCCTGATGGTGCACCTGTGGAGGAGCAGG 1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4889 CTATGGAGACAGAGCCCAAAGGTGCTGCTGATGTAGAAAGG 4930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 32.4; DB 4;
Pred. No. 6.9;
0; Mismatches 81;
PRIOR APPLICATION NUMBER: US 60/055,779
PRIOR FILING DATE: 1997-08-14
NUMBER OF SEQ ID NOS: 5674
LENGTH: 1074
                                                                                                ; TYPE: DNA; ORGANISM: Staphylococcus epidermidis US-09-134-001C-2054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1, Application US/08913832A Patent No. 6329517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1, Application US/09249181A Patent No. 6440679 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.2%;
                                                                                                                                                                            2.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Seelig, Hans Peter
                                                                                                                                                                                            1 Similarity 49.7
85; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Homo saplens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; LOCATION: (1)...(5736)
US-08-913-832A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO 1
LENGTH: 6328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-249-181A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-913-832A-1
                                                                                                                                                                            Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local
Matches 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE
                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 29
                                                                                                                                                                                                                                                                                                                                                               .
අු
                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
```

```
Fabrics Using Truncated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1309 CCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAT 1368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4829 AACCCCCTGAGGGAGAGAGAAAGTGGAAAAGGCAGAGGTGAAGGAGAAGAAGAAGAACAGAAGAAC 4888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4769 CIGCCAITGAGIGIACACAGGCCCCIGCCCCGGCCTCAGAGGAGAAAGGICGITGIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1249 CCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4; Length 6328;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: Spring House Corporate Center, P.O. Box 457
CITY: Spring House
STATE: PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1369 GTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGG 1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4889 CTATGGAGACAGAGCCCAAAGGTGCTGCTGATGTAGAGAAGG 4930
TITLE OF INVENTION: DERNATOMYOSITIS-SPECIFIC AUTO-ANTIGEN
FILE REFERENCE: 8484-0059-999
CURRENT APPLICATION NUMBER: US/09/249,181A
CURRENT FILID DATE: 1999-01-12
PRIOR APPLICATION NUMBER: US 08/913,832
PRIOR FILING DATE: 1998-01-12
PRIOR FILING DATE: 1998-01-12
PRIOR FILING DATE: 1996-03-08
NUMBER OF SEQ ID NOS: 2
SOFTWARE: FASTESEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cellulase Enzyme Compositions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Anderson, Paige
Glbbs, Moreland
Bergquist, Peter
Daniels, Roy
Morgan, Hugh W.
Williams, Diane P.
TITLE OF INVENTION: Treating Cellulose Con
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 32.4; Di
Pred. No. 6.9;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/09/136,574A FILING DATE: 19-Aug-1998 CLASSIFICATION: <UNKNOWN> PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 08/932,571 FILING DATE: September 19, 1997 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: Howson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Graham K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-136-574A-1/c
; Sequence 1, Application US/09136574A
; Patent No. 6294366
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.2%;
50.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: USA
ZIP: 19477
COMPUTER READABLE FORM:
MEDIUM TYPE: Diske
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Farrington,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 50.0
Matches 81; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                 ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                          ; FEATURE:
; NAME/KEY: CDS
; LOCATION: (1)...(5736)
US-09-249-181A-1
                                                                                                                                                                                                                                           SEQ ID NO 1
LENGTH: 6328
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                             TYPE: DNA
```

NAME: Bak, Mary E.

```
COMPUTER REACABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM Comparatible
OMPUTER: IBM Comparatible
OPERATING SYSTEM: MS-DOS
SOFTWARE: ASCI(DOS) Text only
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/804,227C
FILING DATE: February 21, 1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Plant, Thomas, G.
REGISTRATION NUMBER: 35,784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE: INDIANAPOLIS
STATE: INDIANAPOLIS
STATE: IN
                                                      ; MOLECULE TYPE: DNA (genomic) US-08-742-185-101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: X-
TELECOMMUNICATION INFORMATION:
                                                                                                                     2.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: 317-276-2459
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 44377 base pairs
                                                                                                                 Query Match 2.2
Best Local Similarity 44.5
Matches 129; Conservative
                 single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
          STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-804-227C-7/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: U
                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                1901 TITCATITCGITCCCIGCAGIAATACTATIGAAAIGCIICAAAACCAICITCITITCIGI 1842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 101, Application US/08742185

Fatent No. 6020476

GENERAL INFORMATION:
APPLICANT: Page, David C.
APPLICANT: Reijo, Renee
APPLICANT: Reijo, Renee
APPLICANT: Reve, Mary Pat
TITLE OF INVENTION: DAZ: A GENE FAMILY ASSOCIATED WITH AZOOSPERMIA
TITLE OF INVENTION: DAZ: A GENE FAMILY ASSOCIATED WITH AZOOSPERMIA
NUMBER OF SEQUENCES: 102
CORRESPONDENCE ADDRESS:
ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C.
STREET: Two Militia Drive
CITY: Lexington
STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                 440 TGTAGTATCTCATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTTGACTTTTGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1841 ATCAGAGGCAATGCTTTTGTAAGACAAAGCTACCTACTTTGAAATAATCTCT 1788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 11707;
                                                                                                                                                                                                                                                                                                                                                               51; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER NEADABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
OPERATURG SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/742,185
FILING DATE: 30-OCT-1996
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                          DB 4;
REGISTRATION NUMBER: 31,215
REFERENCE/DOCKET NUMBER: 1997US001/CIP
                                                                                                                                                                                                                                                                                                                 Score 32.4; DB Fred. No. 10; 0; Mismatches
                                                                                                                                                                                                                                TOPOLOGY: linear SEQUENCE DESCRIPTION: SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/690,734
FILING DATE: 31-011-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/310,429
FILING DATE: 22-SEP-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: WH194-07A2
TELECHMUNICATION INFORMATION:
TELEPHONE: (617) 861-6240
TELEFAX: (617) 861-9540
INFORMATION FOR SEQ ID NO: 101:
                                         TELECOMMUNICATION INFORMATION:
TELEPHONE: 215-540-9200
TELEFAX: 215-540-5818
                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 11707 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                            INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                   Ouery Match 2.2%;
Best Local Similarity 55.3%;
Matches 63; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : 43795 base pairs
nucleic acid
                                                                                                      TELEX: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-742-185-101
                                                                                                                                                                                                                                                                       US-09-136-574A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
```

```
40803 AIGICIGCCIAACIACCIAIGGIAACAAAGCITITITITITITITITITIGAGGCAA 40862
                                                                                                                                                                                                                                                                                                                                                                                                                                                          40983 GIGIGCCACCACACCIGGCTAATITCIGIATITITGIAGACAGGATIGCCTIGIG 41042
                                                                                                                                                                                                                                        .0863 GGTCTTGCTCTGTCACCCCAGGTGTCGTGGGGCAATCATGGTTCACTGCAACCTC 40922
                                                                                                  847 GIGCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTT
                                                                                                                                                                                                                                                                                                                                                        40923 AACCICCAGGGCICAATIGAICCICCCACCITAGCCICCIGAGIAGCCAGGACTACGGGI
                                                                                                                                                                                                                                                                                                                                                                                                        967 GGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTG
                                                                                                                                                                                                                                                                                                        907 ITGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1027 GTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGC 1076
          Length 43795;
Score 32.4; DB 3; Length 4
Pred. No. 22;
0; Mismatches 161; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 7, Application US/08804227C
Patent No. 5876991
GENERAL INFOMATION:
APPLICANT: DeHoff, Bradley S.
APPLICANT: Ruhstoss, Stuart A.
APPLICANT: Rosteck, Paul R., Jr.
APPLICANT: Sutton, Kinberly L.
TITLE OF INVENTION: POLYKETIDE SYNTHASE GENES
NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
350..14002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY:
LOCATION:
```

```
CDS
14046..20036
                                                                                                                                                                                            36155..41830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 : PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 50.09
Matches 106; Conservative
                                                                                                                                   CDS
31329..36071
                                                                                        CDS
20110..31284
   CDS
350..14002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                             31546 CGGTC 31542
                                                                                                                                                                                                                                                                                                                                                                                                                287 CGGGC 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -09-156-316-11/c
   NAME/KEY:
LOCATION:
                                            NAME/KEY:
LOCATION:
                                                                                     NAME/KEY:
LOCATION:
                                                                                                                                               LOCATION:
FEATURE:
                                                                                                                                                                            ; NAME/KEY:
; LOCATION:
US-08-804-198-1
                                                                                                                                   NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-156-316-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                     FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE
                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                   227 CAGTACATGCCGCCGGCGCTGATACCGGCAAGAATGGTCGCAAACTCCCGCTCCGTGCAG 286
                                                                                                                                                                                                                                                                167 GGGAAGCATCAGAAGGGCGGGGAACTCCGTCCGGCCAGTGAACCGTGCCACACTCCGGG
                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                         Length 44377;
                                                                                                                                                                                                                                   58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Burgett, Stanley G.
APPLICANT: Ruhstoss, Stuart A.
APPLICANT: Rao, Magaraja R.
APPLICANT: Rao, Mark A.
APPLICANT: Rosteck, Paul R., Jr.
TITLE OF INVENTION: PLATENOLIDE SYNTHASE GENE
NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
ADDRESSEE: PAUL R. CANTRELL 1138
STREET: LILLY CORPORATE CENTER
COUTY: INDIANAPOLIS
                                                                                                                                                                                                        DB 2;
                                                                                                                                                                                                      Query Match 2.2%; Score 32.2; D
Best Local Similarity 53.6%; Pred. No. 26;
Matches 67; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
COMPUTER: Macintosh
OPERATING SYSTEM: Macintosh 7.0
SOFTWARE: Macrosoft Word 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/804,198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: CANTRELL, PAUL R.
REGISTRATION NUMBER: 36,470
REFERENCE/DOCKET NUMBER: 99113
TELECOMMUNICATION INFORMATION:
TELEPHONE: 317-276-3885
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1, Application US/08804198
Patent No. 5945320
GENERAL INFORMATION:
APPLICANT: Burgett, Stanley G.
APPLICANT: Kuhstoss, Stuart A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 44377 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                              CDS
36155..41830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
                             14046..20036
                                                                                                 CDS
31329..36071
                                                                      20110..31284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                      ||| |
CGGTC 31542
                                                                                                                                                                                                                                                                                                                                                                                   287 CGGGC 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46285
            NAME/KEY:
LOCATION:
FEATURE:
NAME/KEY:
LOCATION:
FEATURE:
                                                                                                 NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JS-08-804-198-1/C
                                                                                                                              FEATURE:
NAME/KEY:
                                                                                                                                                            ;
US-08-804-227C-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY:
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                               31546
FEATURE
                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                   ö
```

```
31606 CAGTACGAGGTGCCGGGCGTGTCGGGGTCGGGCGAGTACCTTCCCTCCACGTCCCAGCCG 31547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           286
                                                                                                           167 GGGAAGCATCAGAAGGGCGGGGAACTCCGTCCGGCCAGTGAACCGTGCCACACTCCGGG 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  482 TAAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGAT 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         423 CCTTAGTATTTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCA-A 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              542 AAAAAAAACTCTTCCTGTTCTGATTCTTCTGCGCGTATCGGGGGAGCTTTTCTACCGCTGT 601
                                                                                                                                                                                                                       227 CAGTACATGCCGCCGCGCGCTGATACCGGCAAGAATGGTCGCAAACTCCCGCTCCGTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Bernstein, Harold S.
APPLICANT: Coughlin, Shaun R.
TITLE OF INVENTION: Methods and Compositions for Regulating Cell Cycle
TITLE OF INVENTION: Progression
FILE REFERENCE: UCSF-020/ULG
CURRENT APPLICATION NUMBER: US/09/156,316
CURRENT FILING DATE: 1998-09-18
EARLIER FILING DATE: 1997-09-22
NUMBER OF SEQ ID NOS: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2521 TAAACTGTACTTCAGAATTTTGACTTTAAAGTCTCTTTCTCCAGCAGCAAATCAGCATAT
                                                        0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ä
  Length 44377;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 4; Length 2837;
                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. 5.7;
0; Mismatches 105;
     DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       602 AGCCGCTGATAAAAAGAGACTCAAAATTTCT 633
Query Match 2.2%; Score 32.2; DE Best Local Similarity 53.6%; Pred. No. 26; Matches 67; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.1%; Score 32;
50.0%; Pred. No. 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 11, Application US/09156316
Patent No. 6183961
GENERAL INFORMATION:
```

2401 AGCCTCCGGGGAATAGCAGAATCTTCATGTTT 2370

g

```
; NAME/KEY;
; LOCATION:
US-09-196-390-5
                                        a
à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1050 GGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGGTA 1109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2060 GGAGTICCAAGGATGCTATCACCGGCGAAATCGCCGATGACGAGGAGAAATCATACCA 2119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           292 TATTICAGGATACCCTICGICATCAACACGTACAAACCAGAAGACCAGCTTTTIGTITCT 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           618 TATTACAGAATTGTCAACCTCATGAAGAAGGAACGTGCAGAACGAGAGCTTTATGTCGAT 677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: VAKHARIA, Vikram .
APPLICANT: VAKHARIA, Vikram .
APPLICANT: YAO, Kun
TITLE OF INVENTION: METHOD FOR GENERATING NONPATHOGENIC, INFECTIOUS
TITLE OF INVENTION: PANCREATIC NECROSIS VIRUS (IPNV) FROM SYNTHETIC RNA
TITLE OF INVENTION: TRANSCRIPTS
FILE REFERENCE: 8288 -9023
GURRENT APPLICATION NUMBER: US/09/282,147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 4; Length 2278;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.1%; Score 31.8; DB 4; Length 3097;
59.3%; Pred. No. 7;
tive 0; Mismatches 37; Indels (
                                                                                                                                                     APPLICANT: Andersen, Jens Tonne
APPLICANT: Andersen, Jens Tonne
TITLE OF INVENTION: Stanislase Dusko
TITLE OF INVENTION: Systems for Improved Production of Proj.
FILE REFERENCE: 5259.204-US
CURRENT APPLICATION NUMBER: US/09/442,055
CURRENT APPLICATION NUMBER: 0726/97
EARLIER APPLICATION NUMBER: 0726/97
SARLIER PILING DATE: 1997-06-20
NUMBER OF SEQ ID NOS: 11
SOFTWARE: PastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              352 GACATCCACAAAGAAGGGAATATTCAGGTCTGCGCAGCA 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           678 GAGGTTGTCAATGAAGTGAAGAAACGTGTCGAAGAAGTA 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Infectious pancreatic necrosis virus US-09-282-147-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT FILING DATE: 1999-03-31
EARLIER APPLICATION NUMBER: US/60/080,278
EARLIER FILING DATE: 1998-03-31
EARLIER FILING DATE: 1998-03-31
NUMBER: PELING DATE: 1998-03-31
NUMBER: OF SEQ ID NOS: 51
SEQ ID NO 38
LENGTH: 3097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 31.8;
Pred. No. 5.
                                                                                  Sequence 1, Application US/09442055 Patent No. 6306631 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 38, Application US/09282147
Patent No. 6274147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 2.1%;
Best Local Similarity 57.6%;
Matches 57; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 2.19
Best Local Similarity 59.39
Matches 54; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ) NAME/KEY: CDS
; LOCATION: (21)...(2222)
US-09-442-055-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: relA-bac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 36
US-09-282-147-38
                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: DNA
```

ò g δŏ á g

```
NUCLEIC ACID MOLECULES ENCODING ENZYMES FROM WHEAT WHICH ARE INVOLVED IN STARCH SYNTHESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: United States of America
ZIP: 10020
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)
APPLICATION NUMBER: US/09/196,390
                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING TITLE OF INVENTION: FROM WHEAT WHICH ARE INVOLVED I TITLE OF INVENTION: SYNTHESIS

NUMBER OF SEQUENCES: 9
CORRESPONDENCE ADDRESS:
ADDRESSEE: James F. Haley, Jr., c/o Fish & Neave STREET: 1251 Avenue of the Americas
1110 TACTGGGGCCTGACAACAAGCCTCTTGCAG 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LIBRARY: CDNA library in pBluescript sk (-) CLONE: pTASS1
                                          2120 ATCTGCGGTGTAGACATCAAAGCCATCGCAG 2150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: DE 196 21 588.9
FILING DATE: 29-MAY-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: DE 196 36 917.7
FILING DATE: 11-SEP-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/FP97/02793
ATTORNE: ABLAY JU., James F.
REGISTRATION NUMBER: 27,794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: AGREVO-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN: cv. Florida
TISSUE TYPE: ca. 21 d Caryopses
                                                                                                                                  US-09-196-390-5; Sequence 5, Application US/09196390; Patent No. 6307125; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Triticum aestivum L.
                                                                                                                                                                                                                                                    Lorz, Horst
Lutticke, Stephanie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE: (212) 596-9000
TELEFAX: (212) 596-9090
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 2825 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY: linear MOLECULE TYPE: CDNA to mRNA
                                                                                                                                                                                                                                                                                          APPLICANT: Walter, Lennart
APPLICANT: Frobberg, Claus
                                                                                                                                                                                                                            Block, Martina
                                                                                                                                                                                                                                                                                                                                         APPLICANT: Kossmann, Jens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
162..2559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM:
                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                         APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE:
```

us-09-674-277-1.rni

```
1270 CTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGCATA 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2912 CTCTTCCAGCTGCGATCATTGCTGATGGGGAATTGTTGGCCTTTTCAATGTTGACATCA 2853
2852 TCTCCCACACAGAAGACATCACAGGCTGCCTTGAAGACCTTCTTGGCCCAGGTCCTGA 2795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1330 CATTIGGTAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGA 1387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 31.6; DB 4; Length 4353;
Pred. No. 10;
0; Mismatches 54; Indels 0;
                                                                                                                                                                                                    APPLICANT: Bishopric, Namette H.
APPLICANT: Bishopric, Namette H.
APPLICANT: Laderoute, Keith R.
APPLICANT: Laderoute, Keith R.
APPLICANT: Green, Christopher J.
TITLE OF INVENTION: Tissue Specific Hypoxia Regulated
TITLE OF INVENTION: Therapeutic Constructs
NUMBER OF SEQUENCES: 37
CORRESPONDENCE ADDRESS:
ADDRESSEE: Dehlinger & Associates
STREET: 350 Cambridge Avenue, Suite 250
CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human NOS-1 gene, Fujisawa, et al,
J. Neurochem 63:140 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/880,342
FILING DATE: 23-JUN-1997
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/IB95/00996
FILING DATE: 13-NOV-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/365,486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _
=
-
-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8255-0018.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPALIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                     Sequence 18, Application US/08880342
Patent No. 6218179
GENERAL INFORMATION:
APPLICANT: Webster, Keith A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 23-DEC-1994
ATTORNEY/AGENT INFORMATION:
NAME: Sholtz. Charles K.
REGISTRATION NUMBER: 38,615
REFERENCE/POCKET NUMBER: 8255
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: (415) 324-0880
TELEFAX: (415) 324-0860
INFORMATION FOR SEQ ID 00: 18:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: CDNA to mRNA HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 2.1%;
Similarity 54.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4353 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INDIVIDUAL ISOLATE: INDIVIDUAL ISOLATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ANTI-SENSE: NO ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94306
                                                                                                    US-08-880-342-18/C
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE: CI
COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-880-342-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1270 CTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGCATA 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2912 CTCTTCCAGCTGCGATCATTGCTGATGAGGGAATTGTTGGCCTTTTCAATGTTGACATCA 2853
                                                             ö
                                                                                                  1212 CCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCT 1271
                                                                                                                                         918 CCTGCAGCCCCCGCTGTACAAGAACCTTTGGGATTTCAAGAAATACATTGGTTTCGAG 977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1330 CATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGA 1387
                                                             Gaps
                                                                                                                                                                                                          1272 TTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGG 1321
                                                             ö
                 Score 31.6; DB 4; Length 2825;
Pred. No. 7.7;
0; Mismatches 49; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 4353;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.1%; Score 31.6; DB 2; Length 4.54.2%; Pred. No. 10;
tive 0; Mismatches 54; Indels
                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Webster, Keith A.
APPLICANT: Bishopric, Nanette H.
TITLE OF INVENTION: Tissue Specific Hypoxia Regulated
TITLE OF INVENTION: Therapeutic Constructs
NUMBER OF SEQUENCES: 31
CORRESPONDENCE ADDRESS:
ADDRESSE: Deblinger & Associates
STREET: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human NOS-1 gene, Fujisawa,
J. Neurochem 63:140 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23-DEC-1994
                                                                                                                                                                                                                                                                                                            US-08-365-486A-18/c
; Sequence 18, Application US/08365486A
Patent No. 5834306
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION: JATACKATON: ATTORNEY/AGENT INFORMATION:
NAME: Sholtz, Charles K.
REGISTRATION NUMBER: 38,615
REFERENCE/POCKET UNBERE: 8255
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 324-0860
TELEPHONE: (415) 324-0860
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 4353 base_pairs
                   2.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: CDNA to mRNA HYPOTHETICAL: NO
               Query Match 2.19
Best Local Similarity 55.5
Matches 61; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ANTI-SENSE: NO
ORIGINAL SOURCE:
INDIVIDUAL ISOLATE:
INDIVIDUAL ISOLATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1..4305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 23 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-365-486A-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ర
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY:
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                         a
                                                                                                                                                                                                                       g
                                                                                                                                                                                    ð
```

```
Sequence 3, Application US/09123624

Patent No. 6149936

GENERAL INFORMATION:
APPLICANT: SCHRADER, Jurgen
APPLICANT: GODECKE, Axel
TITLE OF INVENTION: DNA EXPRESSION VECTORS FOR USE IN THE GENE THERAPEUTIC
TITLE OF INVENTION: TREATMENT OF VASCULAR DISORDERS
FILE REFERENCE: 511169-2004
CURRENT APPLICATION NUMBER: US/09/123,624
CURRENT APPLICATION NUMBER: 08/553,503
PRIOR FILING DATE: 1996-03-01
PRIOR FILING DATE: 1996-03-01
PRIOR FILING DATE: 1994-03-31
NUMBER OF SEQ ID NOS: 6
SOFTWARE: PATENTIN NOS: 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1270 CTTTTTCACGTATGGCCATGGATGATGAGGACTGTGGCCCTGATCGCGGGGGGCCATA 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3339 CTCTTCCAGCTGCGATCATTGCTGATGAGGGAATTGTTGGCCTTTTCAATGTTGACATCA 3280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1270 CTTTTTCACGTATGGCCATGGATGAGGAGACTGTGGCCCCTGATCGCGGGAGGCCATA 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1330 CATTIGGTAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGA 1387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3279 TCTCCCACACAGAAGACATCACAGGCTGCCTTGAAGACCTTCTTGGCCCAGGTCCTGA 3222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1330 CATTIGGTAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGA 1387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3279 TCTCCCACACAGAAGACATCACGGCTGCCTTGAAGACCTTCTTGGCCCAGGTCCTGA 3222
                              INVENTION: DNA EXPRESSION VECTORS FOR USE IN GENE THERAPEUTIC INVENTION: TREATMENT OF VASCULAR DISORDERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 3; Length 4780;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 3; Length 4780;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  54; Indels
          TITLE OF INVENTION: DNA EXPRESSION VECTORS EN TITLE OF INVENTION: TREATMENT OF VASCULAR DIG FILE REFERENCE: 51169-2003 CURRENT APPLICATION NUMBER: 08/53,503 EARLIER FILING DATE: 1998-07-28 EARLIER FILING DATE: 1996-03-01 EARLIER FILING DATE: 1994-03-31 NUMBER OF SEQ ID NOS: 6 SOTHWARE: PATENTY OF SEQ ID NOS: 6 SOTHWARE: PATENTY OF SEQ ID NOS: 6 SEQ I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 31.6; D
Pred. No. 11;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 31.6; DE
Pred. No. 11;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 20, Application US/08880342; Patent No. 6218179 GENERAL INFORMATION: GENERAL APPLICANT: Webster, Reith A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.1%;
ilarity 54.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.1%;
54.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                            ; TYPE: DNA
; ORGANISM: Cytomegalovirus
US-09-123-708-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 54.2
Matches 64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 64; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-880-342-20/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-123-624-3/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 4780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JS-09-123-624-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1270 CTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGCCATA 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3339 CICITCCAGCIGCGATCATIGCIGAIGAGGGAATIGITGGCCITITCAATGTIGACATCA 3280
   2852 TCTCCCACACAGAAGACATCACAGGCTGCCTTGAAGACCTTCTTGGCCCAGGTCCTGA 2795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1330 CATTIGGTAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGA 1387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2; Length 4780;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                    APPLICANT: Webster, Keith A.
APPLICANT: Webster, Nanette H.
TITLE OF INVENTION: Tissue Specific Hypoxia Regulated
TITLE OF INVENTION: Therapeutic Constructs
NUMBER OF SEQUENCES: 31
CORRESPONDENCE ADDRESS: ADDRESS: Debilinger & Associates
STREET: 350 Cambridge Avenue, Suite 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human NOS-SN gene, Nakane, et al, FEBS Lett 316:175 (1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER FRANABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATURG SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/365,486A
FILING DATE: 23-DEC-1994
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match
2.1%; Score 31.6; Di
Best Local Similarity 54.2%; Pred. No. 11;
Matches 64; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: Sholtz, Charles K.
REGISTRATION NUMBER: 38,615
REFERENCE/DOCKET NUMBER: 38,55-0018
TELECOMMUNICATION INFORMATION:
TELEFROM (415) 324-0860
TELEFRA: (415) 324-0960
INFORMATION FOR SEQ ID NO: 20: SEQUENCE CHARACTERISTICS:
LENGTH: 4780 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                Sequence 20, Application US/08365486A
Patent No. 5834306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 3, Application US/09123708 Patent No. 6146887 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA to mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: CDS
LOCATION: 431..4732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INDIVIDUAL ISOLATE: INDIVIDUAL ISOLATE:
                                                                                                                                                                                                  Patent No. 5834306
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: SCHRADER, APPLICANT: GOEDECKE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ANTI-SENSE: NO
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE:
HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-365-486A-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 41
US-09-123-708-3/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY:
STATE:
셤
```

Gaps

ö

q ð

à

```
1059 Trccraagcggcrgracaaggcccrcrccrgcrgaagaaggaarrrgaacrgagcaagc 1118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1119 TGCAGCAGCGCCTGGGGCGGGAGGTGGAGGAAGATCAAGCAGACCCACCGTAAGTACC 1178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       174 ATCAGAAGGCCGGGGAACTCCGTCCGGCCAGTGAACCGTGCCACACTCCGGGCAGTACA 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            114 TTCTCCAGCCAGTTAAGCCAGCGGTTTCCCTGCTGAAAATGTCGGCAAAACGGGGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 17. Application US/09007005B

Patent No. 6258588

GENERAL INFORMATION:
APPLICANT: Szostak, Jack W.
APPLICANT: Roberts, Michard W.
APPLICANT: Liu, Rihe
TITLE OF INVENTION: SELECTION OF PROTEINS USING RNA-PROTEIN
TITLE OF INVENTION: WIGHER: US/09/007,005B
CURRENT FILING DATE: 1998-01-14
EARLIER PILICATION NUMBER: GO/064,491
EARLIER FILING DATE: 1997-01-27
EARLIER FILING DATE: 1997-11-06
NUMBER OF SEQ ID NOS: 33
SOFTWARE: FastSEQ for Windows Version 4.0
LENGTH: 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1; Length 3407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. 10;
0; Mismatches
TITLE OF INVENTION: CDK4 Binding Proteins NUMBER OF SEQUENCES: 95
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 31.4;
                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: ASLILLEN,
CURRENT APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
CLASSIFICATION: 435
ATTORNEY, AGENT INFORMATION:
NAME: VINCENT, MATTHEW P.
REGISTRATION NUMBER: 36,709
REFERENCE/DOCKET NUMBER: 36,709
REFERENCE/DOCKET NUMBER: MII-028
TELEPHONE: (617) 227-7400
TELEPHONE: (617) 227-7400
TELEPHONE: (617) 227-7401
SEQUENCE CHARACTERISTICS:
SEQUENCE CHARACTERISTICS:
                                                 STATE: MAHUE & COCKFIELD STREET: 60 State Street CITY: Boston STATE: MA
                                                                                                                                                                                                                                ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible '
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII(text)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1179 IGCIGCAGGAGCAGCIA 1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 2.1
Best Local Similarity 51.8
Matches 71; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; MOLECULE TYPE:
US-08-253-155A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 45
US-09-007-005-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1270 CTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGCCATA 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3339 CTCTTCCAGCTGCGATCATTGCTGATGAGGGAATTGTTGGCCTTTTCAATGTTGACATCA 3280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1330 CATTIGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGA 1387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.1%; Score 31.6; DB 4; Length 4780; 54.2%; Pred. No. 11; tive 0; Mismatches 54; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human NOS-SN gene, Nakane, et al,
FEBS Lett 316:175 (1993)
                                                    APPLICANT: Laderoute, Keith R.
APPLICANT: Green, Christopher J.
TITLE OF INVENTION: Tissue Specific Hypoxia Regulated
TITLE OF INVENTION: Therapeutic Constructs
NUMBER OF SEQUENCES: 37
CORRESPONDENCE ADDRESS:
ADDRESSE: Dehlinger & Associates
STREET: 350 Cambridge Avenue, Suite 250
CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                        COUNTRY: USA

ZIP: 94306
COMPUTER RADABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/880,342
FILING DATE: 23-JUN-1997
CLASSIFICATION DATA:
APPLICATION NUMBER: PCT/IB95/00996
FILING DATE: 13-NOV-1995
FILING DATE: 23-DEC-1994
PRIOR APPLICATION NUMBER: US 08/365,486
FILING DATE: 3-DEC-1994
ATTORNEY/AGENT INFORMATION:
NAME: Sholtz, Charles K.
REFERENCE/DOCKET NUMBER: 8255-0018.30
TELEPHONE: (415) 324-0860
TELEPHONE: (415) 324-0860
TELEPHONE: (415) 324-0800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 7, Application US/08253155A Patent No. 5691147 GENERAL INFORMATION: APPLICANT: Gyuris, Jeno APPLICANT: Draetta, Giulio
  Bishopric, Nanette H.
Murphy, Brian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: CDNA to mRNA HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: CDS
TOCATION: 431..4732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INDIVIDUAL ISOLATE: INDIVIDUAL ISOLATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
Matches 64; Conserval
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                           CITY: Palo Alto
STATE: CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ANTI-SENSE: NO
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCATION:
US-08-880-342-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-253-155A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
RNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRN 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: KARMI, Mansour
APPLICANT: BARTHELS, Nathalie
APPLICANT: GHEYSEN, Godelieve
TITLE OF INVENTION: PATHOGEN INDUCED PLANT PROMOTERS
FILE REFERENCE: 6201-0014
CURRENT APPLICATION NUMBER: US/09/341,678
                                                                                                                                                                                                                                                                        Sequence 9, Application US/09175928A
Patent No. 6312921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2901 AGAATCAGCTGACTGCAG 2918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 5, Application US/09341678
Patent No. 6252138
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                             APPLICANT: Jacobs, Kenneth
PAPLICANT: MCCOP, John M.
APPLICANT: Lavallie, Edward R.
APPLICANT: Collins-Racie, Lisa A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           371 ATAITCAGGICTGCGCAG 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 2.1%;
Best Local Similarity 45.0%;
Matches 116; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              : PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Evans, Cheryl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-341-678-5/c
                                                                                                                                                                                                                                                      US-09-175-928-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-175-928-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH
                                                                                                                           ò
                                                   ò
                                                                                      셤
                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                          1251 GCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCC 1310
                                                                                                                                                                                                                                                                                                                                      1311 CTGATCGCGGAGGCCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAATGT 1370
                                                                                                                                                                                                                                                                                                                                                                                                                 1371 ATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGGATGGAAAATAAA 1430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95 RNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRN 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1311 CTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAAGT 1370
                                                                                                                                                                                                                                                                                                         94
                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 17, Application US/09244796

Patent No. 6281344

GENERAL INFORMATION:
APPLICANT: Szostak, Jack W.
APPLICANT: Szostak, Richard W.
APPLICANT: Hoberts, Richard W.
TITLE OF INVENTION: SELECTION OF PROTEINS USING RNA-PROTEIN
TITLE OF INVENTION: 1905.007
CURRENT FILING DATE: 1999-02-05
EARLIER FILING DATE: 1999-01-27
EARLIER FILING DATE: 1997-01-27
EARLIER FILING DATE: 1997-11-06
EARLIER FILING DATE: 1997-11-06
EARLIER FILING DATE: 1998-01-14
NUMBER OF SEQ ID NOS: 33
SOFTWARE: FEASTSEQ for Windows Version 4.0
                                                                                                                                                                                    Length 289;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1431 TGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGG 1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 289;
                                                                                                                                                                              tch
2.1%; Score 31; DB 4; Length 289
al Similarity 4.9%; Pred. No. 3.1;
11; Conservative 95; Mismatches 117; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        215 RNRSRCRARGRCRURGRCRGRURARARCRURCRURGRCRGR 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 2.1%; Score 31; DB 4; Length 289
Best Local Similarity 4.9%; Pred. No. 3.1;
Matches 11; Conservative 95; Mismatches 117; Indels
                      FEATURE: OTHER INFORMATION: Translation template
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: Translation template
                                                                           NAME/KEY: misc_feature
LOCATION: (1)...(289)
CTHER INFORMATION: n = A,T,C or G
US-09-007-005-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 : NAME/KEY: misc_feature

: LOCATION: (1)...(289)

: OTHER INFORMATION: n = A/T,C or G

US-09-244-796-17
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: RNA
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-244-796-17
                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ ID NO 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
2781 TCCTCCAGGATGAAGATCGGCTCACCATCACAAGAGTAGAAGACTTGAGCGATGCTGCCA 2840
                                        155 RNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRNRNRSRN 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            131 CCAGCGGTTTCCCTGCTGAAAATGTCGGCAAAACGGGGAAGCATCAGAAGGGCGGGGGA 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 191 ACTCCGTCCGGCCAGTGAACCGTGCCACACTCCGGGCAGTACATGCCGCCGGCGCGTGATA 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         251 CCGGCAAGAATGGTCGCAAACTCCCGCTCCGTGCAGCGGGCTATTTCAGGATACCCTTCG 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   311 TCATCAACACGTACAAACCAGAAGACCAGCTTTTTGTTTCTGACATCCACAAAGAAGGGA 370
                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Merberg, David
APPLICANT: Merberg, David
APPLICANT: Treacy, Maurice
APPLICANT: Mi, Sha
APPLICANT: Genetics Institute, Inc.
TITLE OF INVENTION: SECRETED PROTEINS AND POLYNUCLEOTIDES ENCODING THEM
FILE REFERENCE: 6006A-AJ172A
CURRENT APPLICATION NUMBER: US/09/175,928A
WUMBER OF SED ID NOS: 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 3153;
                                                                                          1431 TGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGG 1473
                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 30.8; DB 4;
Pred. No. 15;
0; Mismatches 142;
```

```
4113218 CAGTGACGGTCGGCGATGCGGGCCGTACAACATCTGACCGGGATCCGGCTATTGGGC 4113277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               736 ATATGGAGGCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCC 795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           887 CAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGA 946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: CDC 1551
OTHER INFORMATION: "n" bases at various positions throughout the sequence
OTHER INFORMATION: represent a, t, c or g
US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: FLEISCHMAN, Robert D.
APPLICANT: WHITE, Owen R.
APPLICANT: WHITE, Owen R.
APPLICANT: WHITE, Owen R.
APPLICANT: WHITE, Owen R.
THE APPLICANT: VENTER, John C.
TITLE OF INVENTION: DNA SEQUENCES FOR STRAIN ANALYSIS IN MYCOBACTERIUM
TITLE OF INVENTION: TUBERCULOSIS
FILE REPERBURE: 24366-20007.00
CURRENT APPLICATION NUMBER: US/09/103,840A
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
SOFTWARE: PATENTIN VET. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                             NAME/KEY:
NAME/KEY:
NAME/KEY:
10.CCATION: 945..968
OTHER INFORMATION: region corresponding to oligonucleotide MAKARI7
FEATURE:
NAME/KEY:
LOCATION: 1444..1445
OTHER INFORMATION: insertion point of T-DNA
OTHER INFORMATION: insertion in the line ARM1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4; Length 4403765;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 4; Length 4160;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     796 CTGCGGATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTG 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 30.8; DB 4; Length 4
Pred. No. 18;
0; Mismatches 47; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4113278 ACAAGCCAGTTCCTATTGGGCACAAGCCAATTAGAAAT 4113315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        947 TAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAT 984
                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY:

LOCATION: 1418..1570

OTHER INFORMATION: putative open reading frame US-09-31-678-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 30.8; DB
Pred. No. 67;
0; Mismatches
CURRENT FILING DATE: 1999-07-20
EARLIER APPLICATION NUMBER: PCT/EP98/00388
EARLIER FILING DATE: 1998-01-19
NUMBER OF SEG ID NOS: 9
SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA ORGANISM: Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2, Application US/09103840A Patent No. 6294328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ch 2.1%;
.1 Similarity 55.7%;
59; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 2.1%;
Best Local Similarity 57.1%;
Matches 56; Conservative
                                                                                                                                                  TYPE: DNA
ORGANISM: Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 2
LENGTH: 4403765
                                                                                                                            LENGTH: 4160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                887 CAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGA
                                                                                    APPLICANT: FLEISCHMAN, Robert D.
APPLICANT: WHITE, Owen R.
APPLICANT: FRASER, Claire M.
APPLICANT: FRASER, Claire M.
APPLICANT: PRASER, Claire M.
APPLICANT: PRASER, Claire M.
APPLICANT: PRESER, Claire M.
APPLICANT: Owen T.
TILLE OF INVENTION: TUBERCHIOSIS
FILLE OF INVENTION: TUBERCHIOSIS
FILLE REFERENCE: 24366-20007.00
CURRENT APPLICATION NUMBER: 05/09/103,840A
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
SOFTWARE: PATENTIN VET: 2.1
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 4; Length 4411529;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4121083 ACAAGCCAGTTCCTATTGGGCACAAGCCAATTAGAAAT 4121120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         947 TAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAT 984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 30.8; DB Pred. No. 67; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Search completed: June 19, 2003, 03:36:03 Job time: 91.1139 secs
                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: DNA
. ORGANISM: Mycobacterium tuberculosis
; CTHER INFORMATION: H37Rv
US-09-103-840A-1
                        Sequence 1, Application US/09103840A Patent No. 6294328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.19
Best Local Similarity 57.19
Matches 56; Conservative
                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 4411529
JS-09-103-840A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

THIS PAGE BLANK (USPTO)

12 BG370112 17 CNS01HHH 10 AM180683	14 BQ142683 17 BH403595	571 10 AW180185 AW180185 AW180185 AW180185 AW180185 AW18020 AW180210 AW180270 AW180270 AW180270 AW180270 AW180270 AW180270 AW180270 AW180270 AW180290 AW1802928 A	13 B1750328 14 BM868464 14 BM862783 14 BU038121	14 BU038189 10 AW792137 10 AW792143	12 BF739529 12 BG810098	13 BI874487 9 AIO68496 13 PEGETES	12 BF251520 13 BI718013 10 AW789645	13 BI717417 17 CNSO01N6 · 14 BQ539839	17 BH119903 12 BG711981	12 BF494150 17 CNSO18FX 14 C90436	17 BH724397 17 CNS00ASB	10 AW707196 10 BE556340 9 AT980795	10 AW180016 17 DR22018S	14 BQ611766	10 AW981658 17 BH762769	17 CNS005BT 9 AA601988	10 AW065188 17 CNS01NE5	14 BQ819458 17 AZ090819	1/ CNSO15Y8 17 B49229	12 BF495230 17 AQ850214	12 BG629/04 10 AW638187 12 BE635003	17 AG135931 9 AV072912	17 AZ978404 9 AJ454978	12 BG387766 14 BO390739	12 BG322881 17 CNS010B7	17 CNS014GC 17 CNS0100X	17 AQ514956 17 AQ559871	12 BE874869 11 AY108097	14 W09301
176.4 11. 171.8 11. 161 10.	154.6 10. 152.6 10.	13 134.2 9.0 14 132.6 8.9 15 104.4 7.0 16 97 6.5	87.6 5. 82.8 5. 79.2 5. 66 4.	66 4. 55.8 3. 55.8 3.	53.2	47.8	44.8 43.8	31 41.4 2. 32 40.4 2. 33 40 2.	39.8	39.4	39 38.2 2. 40 38.2 2.	37.8 37.8 2.8	37.6	46 37.2 2.	37 2.	50 37 2. 51 36.8 2.	36.8	36.6	36.4	36.4	36.2	36.2	36 2.	36 2.	69 35.6 2. 70 35.6 2.	35.6 2. 35.6 2.	73 35.4 2.	35.4	35.2 2.
gen Ltd.		Search time 1574.88 Seconds (without alignments) 15312.305 Million cell updates/sec.	.ctggaaggagcctggtcgac 1489			32308132																	predicted by chance to have a score of the result being printed,	e distribution.	•	Description	EST632	BQ751801 EST632364 BQ751512 EST632075	EST632
GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen	nucleic search, using sw model	June 18, 2003, 01:20:59 ; Search t (withou 15312.3	US-09-674-277-1 : 1489 : tctgcagtccggagatgaaag	H 8	16154066 seqs, 8097743376 residues	of hits satisfying chosen parameters:	seq length: 0 seq length: 2000000000	ing: Minimum Match 08 Maximum Match 1008	Listing first 150 summaries	1:21:= 1:em_estba:* 2:em_esthum:*	3: em_estin:* 4: em_estmu:*	5: em_estov:* 6: em_estpl:* 7: em_estpl:*		gb_est					21: em_gss_vrt:*			27: em_gss_rod:*	o. is the number of results reater than or equal to the	derived by analysis of the	SUMMARIES 8	Query re Match Length DB ID	13.2 762 14	13.2 707 1 12.8 639 1	12.4 742 14
	OM nucleic -	Run on:	Title: Perfect score Sequence:	Scoring table	Searched:	Total number	Minimum DB s Maximum DB s	Post-processing:	40000	Database :													Pred. No. score gree	and 1:		Result No. Score	1 19	2 196 3 191	18

ALIGNMENTS	BQ752115 ON EXT872678 DSCT Colletotrichum trifolii cDNA clone pDSCT10-12, mRNA			Sordariomycetes incertae sedis; Phyllachorales mitosporic Phyllachoraceae; Colletotrichum. 1 (bases 1 to 762)	Samac, D.A., Dickman, M., Town, C.D., Van Aken, S., Utterback, T., Cheung, F. and Fraser, C.M.		Contact: Deborah A. Samac Department of Plant Pathology University of Winnesset	495 Borlaug Hall, 1991 Upper Buford Circle, St. Paul, MN 55108, USA Tel: 612 625 1243	100000000000000000000000000000000000000	www.medicago.org		וותוו רו זוסווז	/clone="pDSCT10-12" /clone_lib="DSCT"	/Lissue_Cype="Mycella" /dev_stage="Young forwing mycella (3 days after incculation), grown in liquid culture (cutin minimal medium	CONtaining &equicose)." /lab_host="bH5alpha" /note="Vector: Pallnescript 8K+: 64+p 1. Pacet. 64+p 2.	m polyA	Stratagene and packaged using Gigapack packaging extracts. An aliquot of the amplified library was used to transduce F coli v1000 and share two seconds.	I year. The CDNA inserts were gel purified after Ecori digestion and ligated into pBluescript SK+. Aliquots of	the ligation were used to transform E. coli DH5alpha which were plated onto medium with X-gal for selection of	163 a	atch 13.2%; cal Similarity 62.2%;	310	632 CTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCC 691 152 CTGGTGGCCGGATGGGGTGAAACTGTGAGATTACACAGAGCGGAATGAAAAGGGGGGGAATGAAAAGAGAGAAAAAAAA			752 AAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATGGTCA 811	272 GAAGGACCTCACGGCCCTGATGACCGACTCCCAGGACTGGTGGCCTGCCGACTTTGGCCA 331
	RESULT 1 BQ752115 LOCUS DEFINITION	ACCESSION VERSION KEYWORDS	SOURCE ORGANISM	REFERENCE	AUTHORS	JOURNAL COMMENT				FEATIDES	source		•							BASE COUNT ORIGIN	Query Match Best Local	Matches	oy B	οχ	QQ	Qy	Dp
	•	<u>.</u>					<u> </u>														<u>.</u>						_
. 2 .	431 ENTQS86TF 109 602832052 323 Drosophil 56 AL561266 293 CM0-OT005	31 HS_2110_B 5 MtBA09G07 68 BJ295668	13 IMUUSIMUS 5 QV-BT191- 07 258PvG10] [] 0	200	71 RST31855 53 AT31512.5 60 ENTSM61TF	1 AL582541 52 ENTDP10TF	410	702	91 HOA39-1-D	00	3 AL659013 98 BOMGP70TF 66 OGR10102	27	2	17 Drosophil 27 602084262 39 Mis missis	, C, E	64 BB205464 71 SP_1018_B	57 AF011067 7 AF011067 7 AL519510	37 ENTGB12TR 76 603256428 76 Drosophil	M Drosophil	of68f09.r	12 952036G07 10 L30-2553T 10 952046B07	9 952046B07 AU039069	TENGO325 6 BJ080416 2 RPCI-23-3	~	
AA73950 AZ8960	BG9644(BG9644(AL05282 AL561266 AW88229 AW60879	AQ5673 AL36672 BJ2956	AIS0879 AIS693 AZ5693	AL0763 AI05767	AA35480 BE9769	BE2338	BGZ122 BG6350 BH1563	AL58254 AZ5469	AL0639: BM4792:	AZ7026 BB55409 AW08156	BG89969 BM28864	BH0246	BH71549	BQ85437 BQ85529 AL23437	BH66436 AL06446	AL10914 BF67702	BF25236 AI728141	BB20546 AZ19097	AE13086 AF01106 AL519510	AZ54248 BI56127 AL05839	AL103208 AL076421	AL07650 AA834443	AW26583 AW26583 BM66125	BM66124 AU039069	A1612529 BJ08041 AZ00100	AZ33009	
AA739503 AZ896097 RH158031	BG964409 ACNSO04M4 AL561266 D AW882293 D AW608791	AQ567331 AL366725 BJ295668 AZ327913	AI908795 AZ569307 W27996	CNSOODWH AIO57674	AA354804 BE976970	BG157767 BE233807	BG635053 BH156360	AZ54541 AZ546952 CNS06W04	CNS0039G BM479227	AZ702685 BB554095 AW081507	BG899691 BM288646	BH024692 AW271670	BH715498 BQ849666	BQ854322 BQ855297 CNS039U2	BH664387 CNS0037Q	CNS018C1 BF677027 AK012959	BF252362 I728141	BB205464 AZ190971 CNS01MET	AF011067 L519510	AZ542487 BI561276 CNS00C32	CNS013R2 CNS00JLA	A834443 BM660332	AW265830 BM661250	BM661249 U039069	1012329 BJ080416 AZ001002	AZ330097	
911	111.011	HoHH	617	1700	9	225	122	9 27 5	173	122	137	220	17	14 17	17	121	176	17	17	17 13 17	17	3 6 5	13	9 6	13 17	17	
	1120 4 588 4 780 3 327 3 414																										
	1444.000		000	444	CH CH	446		71 71 71	000	700	000	N (N (100	000	000	N 70 70	000	000	00	777	000	9 07 0	וממו	700	100	~ i	
 	36 8 36 4 37 37 37 37 37 37 37 37 37 37 37 37 37 3	3.4. E.	34.1	34.6	34.	34.6	4.6	3.46	34.6	3.4.4.	34.4	4 4 4	34.4	34 4 4 4 4	34.4	34.4	34.2	3 4 4	34.2	34.2 34.2 34.2	34.2	3.4	38	3.44	34.4	34	न
c 81 c 81	0 0 888 87 87 87 87	c 99 91		0 95 0 97	866	c 101		106 c 107	109	c 111 c 112		116	c 118 119	120 121 c 122	123 c 124 125	126 c 127	128	,,,,,	c 133 c 134		c 138 c 139 140	141 c 142		c 146	c 148	150	غر

m

Thu

셤

a

à 셤 ò 셤 ð

ð

셤

ò 셤

à

```
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
BQ751512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             임
                                                                                                                                                                                      ò
                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="mycelia"
/dev_stage="Young, actively growing mycelia (3 days after incoulation) grown in liquid culture (cutin minimal medium containing 2%qucose)."
/lab_host="DH5alpha"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Anote—"Vector: Delluescript SK+; Site_1: ECORI; Site_2: ECORI; isolate: 2sp2; cDNA was prepared from polyA+enriched RNA The cDNA was ligated into Lambda gtll from Stratagene and packaged using Gigapack packaging extracts. An aliquot of the amplified library was used to transduce E. coli T1090 and phage DNA was purified from a liquid lysate. The cDNA inserts were gel purified after ECORI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BQ751801 707 bp mRNA linear EST 18-JUL-2002
EST632364 DSCT Colletotrichum trifolii cDNA clone pDSCT7-68, mRNA
                                                                                                                                                                                                                       CAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGG 1051
                                                                                                                                                                                                                                                                                               1052 ATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGGTATA 1111
                                                                                                                                             451
                                                                                                                                                                                                                                                                                                                    TGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGA 931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Colletotrichum trifolii.
Colletotrichum trifolii
Eukaryota; Fungl. Ascomycota; Pezizomycotina; Sordariomycetes;
Sordariomycetes incertae sedis; Phyllachorales; Phyllachoraceae;
mitosporic Phyllachoraceae; Colletotrichum.
1 (bases 1 to 707)
Samac, D.A. Dickman, M., Town, C.D., Van Aken, S., Utterback, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Deborah A. Samac
Department of Plant Pathology
University of Minnesota
495 Borlaug Hall, 1991 Upper Buford Circle, St. Paul, MN 55108,
Tel: 612 625 1243
Fax: 651 649 5058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: debbys@puccin1.crl.umn.edu
TIGR sequence name: MTSAG68TV More information is available at:
www.medicago.org
Seq primer: (gtA AtA CgA CtC ACt AtA ggg C).
Location/Qualifiers
1. 707
                                                                                             TTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cheung, F. and Fraser, C.M.
ESTs from mycelia of Colletotrichum trifolii race
Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Colletotrichum trifolii"
/strain="race 1"
/db_xref="taxon:5466"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone="pDSCT7-68"
/clone_lib="DSCT"
                                                                                                                                                                                                                                                                                                                                                                      1112 CTGGGGGCCTGACAACAA 1129
                                                                                                                                                                                                                                                                                                                                                                                                             CTACTGGGGGGGGGGAA 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BQ751801
BQ751801.1 GI:21907206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sednence.
 812
                                                                       872
                                                                                                                                                                                                                       992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 2
BQ751801
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
```

```
digestion and ligated into pBluescript SK+. Aliquots of the ligation were used to transform E. coli DH5alpha which were plated onto medium with X-gal for selection of recombinants. ^{\circ} 119 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (2002)
Other ESTs: EST632074
Contact: Deborah A. Samac
Department of Plant Pathology
University of Minnesota
495 Borlaug Hall, 1991 Upper Buford Circle, St. Paul, MN 55108, USA
Fax: 651 649 5058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BQ751512 . 639 bp mRNA linear EST 18-JUL-2002
EST632075 DSCT Colletotrichum trifolii cDNA clone pDSCT5-66, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          992 CAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGG 1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1052 ATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGGTATA 1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       597
                                                                                                                                                                                                                                                                                                                                                                                                                  811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       598 GIICCAGACGGCCGGCTTCTCCGGAAGCCGTCCCGACACCTGGGAAGCCGACGGCACGGT 657
                                                                                                                                                                                                                                            691
                                                                                                                                                                                                                                                                                     237
                                                                                                                                                                                                                                                                                                                                751
                                                                                                                                                                                                                                                                                                                                                                            297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes; Sordariomycetes incertae sedis; Phyllachorales; Phyllachoraceae; mitosporic Phyllachoraceae; Colletofrichum.

1 (bases I to 639)
Samac,D.A., Dickman,M., Town,C.D., Van Aken,S., Utterback,T., Cheung,F. and Fraser,C.M.

ESTs from mycelia of Colletofrichum trifolii race 1
                                                                                                                                                                                                                                                                     752 AAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                             298 GAAGGACCTCACGCCCTGATGACCGACTCCCAGGACTGGTGGCCTCCCGACGACTTTGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           812 TTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               872 TGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      932 TAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   538 CAAGATCTCGTGGGCCGACCTCATGATCCTGGCCGGCAACGTGGCCCTCGAGTCCATGGG
                                                                                                                                                                                                                                          632 CTACTATCCAGAAACACTGGATTTAACTCCTGAGATTACACAGCCCTGAATCAAATCC
                                                                                                                                                                                                                                                                                                                                692 CTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTGAA
                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                 ö
                                                                                                                                                      Length 707;
                                                                                                                                                   Score 196; DB 14; Length 7
Pred. No. 1e-50;
0; Mismatches 190; Indels
                                                                                    195 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGGGGCCTGACAACAAGC 1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTACTGGGGGGGGGGAAAC 677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Colletotrichum trifolii.
Colletotrichum trifolii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BQ751512
BQ751512.1 GI:21906917
EST.
                                                                                                                                                   tch 13.2%;
al Similarity 62.0%;
310; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sedneuce.
                                                                                                                                                      Query Match
Best Local S:
Matches 310,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                        BASE COUNT
```

```
1. .742
/organism="Colletotrichum trifolii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Seq primer: (gtĂ AtA CgA CtC ACt AtA ggg C)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="taxon:5466"
/clone="pDSCT8-27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               212 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clone_lib="DSCT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /strain="race 1"
                GI:21907286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            recombinants.
                                                                                                                                                                                                                                                                                                                               Other_ESTs: EST632443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12.4%;
ilarity 62.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     259 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                www.medicago.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            310;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                            ORGANISM
                                                                                                                                                                                                                                                                      TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                        AUTHORS
                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                VERSION
                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                   FOORT; Stock of the stock of th
                                                                                                                                                                                                                                                                                         /tissue_type="mycelia"
/dev_stage="Young, actively growing mycelia (3 days after
inoculation) grown in liquid culture (cutin minimal medium
containing 2%jucose)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BQ751881 742 bp mRNA linear EST 18-JUL-2002
EST632444 DSCT Colletotrichum trifolii cDNA clone pDSCT8-27, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGTATITCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGG 1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        182 cregredecedarecerranderecarecrececeaecacececerecanee 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTGAA 751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          242 GCTGGGCCAGGACTTTGACTACGTCGCCGCTTCAAGTCGCTCGACTACGAGGGGGTCAA 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             752 AAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGGATTATGGTCA 811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  872 TGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGA 931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           name: MTSAE66TV More information is available at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  812 TIATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'Match 12.8%; Score 191; DB 14; Length 6 Local Similarity 64.2%; Pred. No. 3.8e-49; les 287; Conservative 0; Mismatches 160; Indels
                                                                                                                                                             /organism="Colletotrichum trifolii"
                                                                                   r: (gtA AtA CgA CtC ACt AtA ggg C).
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                110 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTTAAAACGCTGGGATTTGCTGGCGG 1078
        debbys@puccini.crl.umn.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         602 TITCCAGACGGCGGCTTCTCCGGAGG 628
                                                                                                                                                                                                             /db_xref="taxon:5466"
/clone="pDSCT5-66"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          176 g
                                                                                                                                                                                                                                                                                                                                                                                              /lab_host-"DH5alpha"
                                                                                                                                                                                                                                                                    'clone_lib="DSCT"
                                                                                                                                                                                          /strain-"race 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       recombinants.
Email: debbys@pucc
TIGR sequence name
www.medicago.org
                                                                                   Sed primer:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence.
BQ751881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    992
                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 4
BQ751881
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         요
```

```
Contact: Deborah A. Samac
Department of Plant Pathology
University of Minnesota
495 Borlaug Hall, 1991 Upper Buford Circle, St. Paul, MN 55108, USA
Tel: 612 625 1243
Fax: 651 649 5058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /tissue_type="mycelia"
/dev_stage="Young, actively growing mycelia (3 days after
inculation) grown in liquid culture (cutin minimal medium
containing 2%glucose)."
/lab_host="DH5alpha"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Coordinates (Note: "Vector: pBluescript SK+; Site_1: ECORI; Site_2: ECORI; isolate: 2sp2; cDNA was prepared from polyateriche RNA The cDNA was ligated into Lambda gill from Stratagene and packaged using Gigapack packaging extracts. An aliquot of the amplified library was used to transduce E. coli Y1090 and phage DNA was purified from a liquid lysate. The cDNA inserts were gel purified after EcoRI digestion and ligated into pBluescript SK+, Aliquots of the ligation were used to transform E. coli DHSalpha which were plated onto medium with X-gal for selection of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             692 CIGGGGGCTGATITIGATIAIGCCACCAGATITCAACAGCIGGATAIGGAGGCICIGAA 751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 929
Colletotrichum trifolii.
Colletotrichum trifolii
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Sordariomycetes incertae sedis; Phyllachorales; Phyllachoraceae;
mitosporic Phyllachoraceae; Colletotrichum.
1 (bases 1 to 742)
Samac,D.A., Dickman,M., Town,C.D., Van Aken,S., Utterback,T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: debbys@puccini.crl.umn.edu
TIGR sequence name: MTSAH27TV More information is available at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      238 GCTGGGCCAGGACTTTGACTACGTCGCCCCTTCAAGTCGCTCGACTACGAGGGCGTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   752 AAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          812 TTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               872 TGGCCGGGGA--GGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 185.2; DB 14; Length 742;
Pred. No. 2.9e-47;
0; Mismatches 188; Indels 2;
                                                                                                                                                                                                                      Cheung, F. and Fraser, C.M.
ESTs from mycelia of Colletotrichum trifolii race 1
Unpublished (2002)
```

Ŋ

Thu

63.1%;

```
qq
                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FORT; isolate: 28p2; cDNA was prepared from polyatenriched RNA The cDNA was prepared from polyatenriched RNA The cDNA was ligated into Lambda gill from Stratagene and packaged using Gigapack packaging extracts. An aliquot of the amplified library was used to transduce E. coli Y1090 and phage DNA was purified from a liquid lysate. The CDNA inserts were gel purified after EcoRI digestion and ligated into pBluescript SR+, Aliquots of the ligation were used to transform E. coli DHSalpha which were plated onto medium with X-gal for selection of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="mycelia"
/dev_stage="Young, actively growing mycelia (3 days after
incolation) grown in liquid culture (cutin minimal medium
containing 2%jucose)."
/lab_host="DH5alpha"
                                                                                                                                                                                                                                                                                                                                                                                               BQ751387 606 bp mRNA linear EST 18-JUL-2002 EST631950 DSCT Colletotrichum trifolii cDNA clone pDSCT4-87, mRNA sequence.
                                                                                                                                                                 1050 GGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCGGACCTGGTA 1109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                990 TCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATG 1049
                     598 GGTTTCAGACGCCGGCTTCTCCGGAGCCGACACCTGGGAAGCCGACGAGTCC 657
930 GATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCCAGTCAAGAAAAATACGGC 989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Fund international pezizomycotina; Sordariomycetes; Sordariomycetes incertae sedis; Phyllachorales; Phyllachoraceae; Micosporic Phyllachoraceae; Colletotrichum.

1 (bases 1 to 606)
Samac, D.A., Dickman, M., Town, C.D., Van Aken, S., Utterback, T., Cheung, F. and Fraser, C.M.

ESTS from mycelia of Colletotrichum trifolli race, 1
Unpublished (2002)
Other_ESTS: EST631951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MN 55108,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            available at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Paul,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Deborah A. Samac
Department of Plant Pathology
University of Minnesota
495 Borlaug Hall, 1991 Upper Buford Circle, St. Par
Tel: 612 625 1243
Fax: 651 649 5058
Email: debbys@puccini.crl.umn.edu
TIGR sequence name: MTSAD87TK More information is a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Colletotrichum trifolii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 primer: SKmod (CTA gAA CTA gtg gAT Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="taxon:5466"
/clone="pDSCT4-87"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            172 g
                                                                                                                                                                                                                                                    1110 TACTGGGGCCTGACAACAA 1129
                                                                                                                                                                                                                                                                                             658 GTCTACTGGGGGGGGGAGAA 677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /strain="race 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Colletotrichum trifolii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:21906792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Colletotrichum trifolii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            recombinants.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BQ751387.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                        RESULT 5
BQ751387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                           g
                                                                                ò
                                                                                                                     a
                                                                                                                                                                   8
```

Score 183.2; DB 14; Length 606;

12.3%;

Query Match

```
AW179968 729 bp mRNA linear EST 17-NOV-1999
MGA0020f MGA Library Mycosphaerella graminicola cDNA clone MGA0020
5' similar to catalase-peroxidase, mRNA sequence.
AW179968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             991 CCAGTATITCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGG 1050
                                                                   691
                                                                                                                                                    751
                                                                                                                                                                                                                                   811
                                                                                                                                                                                                                                                         255 GAAGGACCTCACGGCCCTGATGACCGACTCCCAGGACTGGTGGCCTGCCGACTTTGGCCA 314
                                                                                                                                                                                                                                                                                                                                                                                                         930
                                                                                                                                                                                                                                                                                                                                                                                                                                                 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Mycosphaerella graminicola"
/strain="Strit"
/db_xref="taxon:54734"
/clone="M4040020"
/clone="N4040020"
/note="Vector: pSPORT1; Library constructed from cultures utilizing ammomium ions as a source of nitrogen"
                                                                                                           194
                                                                                                                                                                                            254
                                                                                                                                                                                                                                                                                                                        871
                                                                                                                                                                                                                                                                                                                                                                374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   et
                                                                                                                                                                                                                                                                                                                                            632 CTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCC
                                                                                       692 CTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTGAA
                                                                                                                                                                                         195 GCTGGGCCAGGACTTTGACTACGTCGCCGCCTTCAAGTCGCTCGACTACGAGGGCGTCAA
                                                                                                                                                                                                                                                                                                                      812 TTATGGTCCTTTCTTTATTCGTATGCCTTGGCACGGTGCCGGAACATACAGGACATATGA
                                                                                                                                                                                                                                                                                                                                                                                                       872 TGGCCGGGGAGG-CGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          931 ATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 729)
Keon, J.P.R., Balley, A.M. and Hargreaves, J.A.
A group of expressed cDNA sequences from the wheat fungal leaf blotch pathogen, Mycosphaerella graminicola (Septoria tritici) Fungal Genet. Biol. 29 (2), 118-133 (2000)
                                                                                                                                                                                                                                   752 AAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota, Fungi, Ascomycota, Pezizomycotina, Dothideomycetes
Chaetothyriomycetes incertae sedis, Mycosphaerellaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1051 GATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGA 1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         555 GITICCAGACGCCCGCTTCTCCGGAGGCCGTCCCGACCTGGGAAGCCGA 606
                          ij
                          Indels
    1.1e-46;
thes 173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cell Biology Department
IACR-Long Ashton Research Station
Long Ashton, Bristol, BS41 9AF, UK
Tel: 444(0)1275 392181
Fax: +44(0)1275 394281
Email: john.nargreaves@bbsrc.ac.uk
Insert Length: 2600 Std Error: 0.00
Seg primer: M13 reverse.
    Pred. No. 1.1e-
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mycosphaerella graminicola.
Mycosphaerella graminicola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Hargreaves JA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AW179968.1 GI:6447163
                        Conservative
Best Local Similarity
Matches 298; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 6
AW179968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
```

a

a ò

ò 셤 à g ò 셤 à g

```
African malaria mosquito.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AL144438
AL144438.1 GI:7002600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 737)
                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Anopheles gambiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genoscope.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .737
                                                                                                                                                     al Similarity
267; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Anopheles.
                                                                                               116
                                                                                                                                      Query Match
Best Local S
Matches 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    476
                                                                                                                                                                                                                                                                                                                                                                                                                          976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
DEFINITION
                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CNS01HHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                         đ
                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                           å
                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BG370112 562 bp mRNA linear BST 09-MAR-2001 mALA123 V8 mycelial library Leptosphaeria maculans cDNA clone LmA123 5' similar to putative catalase/peroxidase, mRNA sequence. BG370112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1052 ATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCG---GACCTGGT 1108
                                                                                                                                                                                                                                                                                                                                                                                                                                              992 CAGTATITCCIGGGGAGACCIGAIGGICCIGACIGGIAAIGIIGCCCIIGAAICCAIGGG 1051
                                                                                                  CIACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCC 691
                                                                                                                                     168
                                                                                                                                                                                            228
                                                                                                                                                                                                                         811
                                                                                                                                                                                                                                     871
                                                                                                                                                                                                                                                                                           932 TAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAAATACGGCTC 991
                                                                                                                                                                                                                                                                                                                                                                                                       528
                                                                                                                                                                                                                                                                                                                                      931
                                                                                                                                                                         CTGGTGGCCAAATGAGCTGAACACCAAGATCCTGCGCCCAGCACCGCTGCTACCGACCC
                                                                                                                                                          CIGGGGGGCTGATTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTGAA
                                                                                                                                                                                                                 752 AAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATGGTCA
                                                                                                                                                                                                                                                                                                                                TGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                812 TTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGA
                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bukaryota; Fund; Ascomycota; Pezizomycotina; Dothideomycetes; Pleosporales; Leptosphaeriaceae; Leptosphaeria.

1 (bases i Lo 562)

1 (doughain, 1 to 562)

1 (doughain, 2 to 201)sen, 3 and Howlett, B.J.

Expressed sequence tags of Leptosphaeria maculans, cause of blackleg disease of oilseed Brassicas
Unpublished (2001)

Contact: Alexander Idnurm

Barbara J. Howlett (bhowlett@unimelb.edu.au)

School of Botany
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The University of Melbourne, Parkville, VIC, 3010, Australia
Tel: 61 3 8344 5056
Fax: 61 3 9347 5460
                                                                            3;
                                               DB 10; Length 729,
                                                                            Indels
                                              Score 176.8; DB 10;
Pred. No. 1.4e-44;
0; Mismatches 192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .562
/organism="Leptosphaeria maculans"
     ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: a.idnurm@botany.unimelb.edu.au
Insert Length: 2700 Std Error: 0.00
Seq primer: T3 Universal Primer.
Location/Qualifiers
     150
       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    blackleg of rapeseed fungus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATACTGGGGGCCTGACAACA 1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             589 ATACTGGGGTGGTGAGACCA 608
    203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BG370112.1 GI:13259728
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Leptosphaeria maculans
                                            tch 11.9%;
al Similarity 61.0%;
305; Conservative
     O
    217
    ø
                                           Query Match
Best Local S
Matches 305
                                                                                                                                                        692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1109
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 7
BG370112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
```

g à

ð a οŽ

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATC 1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CNSO1HHH
Anopheles gambiae GSS SP6 end of clone 08M05 of Notrebamel library from strain PEST of Anopheles gambiae (African malaria mosquito),
                                                                                                                                                                                                                                                                                                                                      686 AAAICCCIGGGGGGTGAITITGAITAIGCCACCAGAITICAACAGCIGGAIAIGGAGGC 745
                                                                                                                                                                                                                                                                                                                                                                        806 IGGICATIAIGGICCITITCITIAITCGIAIGGCITGGCACGGIGCCGGAACAIACAGGAC 865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 356 GCCCGACAATGTCTCGCTTGACAAGGCTCGTCGTCCTTGTGGCCCATCAAGCAAAGTA 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (IEFEB-2000) Genoscope - Centre National de Sequencage : BP 191 91006 EYRY cedex - FRANCE (E-mail : seqrefégenoscope.cns.fr 2 www.genoscope.cns.fr) (Bases 1 to 737)

Roth,C.W., Brey,P.T., Ke,Z., Collins,F.H. and Weissenbach,J. Direct Submission
Submitted (16-FEB-2000) BBMI, Institut Pasteur, 25, rue du Dr. Roux, Paris 75015, France
This clone is from an A. gambiae BAC library provided by F.H. Collins and sequenced by Genoscope in collaboration with the Laboratory of Biochem. and Biol. Molec. of Insects, Institut Pasteur.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1046 CATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGAC 1103
/strain-"M1"
/db_xref="taxon:5022"
/clone='InA123"
/clone=lib="V8 mycelial library"
/note="Library prepared from mycelium grown in 10%
Campbell's V8 juice."
178 c 157 g 111 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    866 ATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAAA
                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukrryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Nematocera; Culicoidea;
                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                    Length 562;
                                                                                                                                                                                                                                          11.8%; Score 176.4; DB 12; Length 63.9%; Pred. No. 1.6e-44; Live 0; Mismatches 151; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
```

```
å
                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST 17-NOV-1999
                                                                                                                                                                                                                                                                                                      GTCAAGAAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAAT 1031
                                                                                                                                                                                                                                                                                                                                                                                                                         TGGGAGTCGGACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGAT 1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCT 1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1272 TTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGCCATACA 1331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCCAGGGCCTGATGGT 1391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCACCTGTGGAGGAGCAGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAA 1451
                                                                                                                                                            ä,
                                                                                                                                                                                                                                                                                                                                                                               CGGAAAGGGCTGGCTAARCGTCCTCTGGCCACCGAAATGGGCCTGATCTACGTGAAC 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AW180683 573 bp mRNA linear EST 17-NOV-1999
My40831f MgA Library Mycosphaerella graminicola cDNA clone MgA0831
S similar to catalase-peroxidase, mRNA sequence.
                                                                                                                                                                                       GGAACATACAGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAA 911
                                                                                                                                                                                                                                                                                                                                                                                                                                                   250 regenaccegarctreacerenacregeergarganaanaccegecreanceaccegeac 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCGGCAAGACTCACGG ---CGCGGGTGAAGCCACCACGTGGGTACCGACCCGGAAGCC 544
                                                                                                                                                                                                                                              CCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCA 971
                                                                                                                                                                                                                                                                           CCACTGAACTCCTGGCCGGATAACGTAAGCCTGGATAAARCGCGCCGTCTGCTGTGGGCCT 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGGAAGG -- CCGAACGCCAGCGGTGAACCGCTGTCAGCGCGGCAGCGATTCGTGCGACC 427
                                                                                                                                                                                                                  GTACCATATCGCTCCGTGGAYGGGCGCGGTGGGGCAGGACGCGGTCAACAGCGCCTTTG-- 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              et
                                                                                                                                                                                                                                                                                                                                    130 ATCAAGAAAAATACGGACAAAAATCTCCTGGGCCGACCTGTTTATCCTCGCGGGTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mycosphaerella graminicola.
Mycosphaerella graminicola
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Dothideomycetes
Chaetothyriomycetes incertae sedis; Mycosphaerellaceae;
                                                                                                                                                            Gaps
                                                                                                                                                         7;
                                                                                                                                 Length 737;
                                                                                     others
                                                                                                                              Score 171.8; DB 17; Length
Pred. No. 5.7e-43;
6; Mismatches 253; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Keon, J. P. R., Bailey, A.M. and Hargreaves, J.A.
                                                                                     ų
                                                                                     127
            /strain="PEST"
/db.xref="taxon:7165"
/clone="108M05"
/clone=11b="NotreDame1"
/note="end : SP6"
/organism="Anopheles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1452 TATACCATCACCAGTGGCCTGGA 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATGCCATTACCTCCGGTCTGGA 627
                                                                                    224 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AW180683.1 GI:6447878
                                                                                                                            tch 11.5%;
al Similarity 57.3%;
357; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 573)
                                                                                    217 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mycosphaerella
                                                                                     161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1392
                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                          190
                                                                                                                                                                                                                                                                                                                                                                                                                        1092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    488
                                                                                                                               Query Match
                                                                                                                                                                                       852
                                                                                                                                                                                                                  12
                                                                                                                                                                                                                                              912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      605
                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                           Best Loca
Matches
                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AW180683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                       ð
                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                             å
```

```
/organism="Mycosphaerella graminicola"
/organism="Strit"
/db_xref="taxon:54734"
/clone="MgA0831"
/clone="MgA081"
/clone="MgA Library"
/note="Vector: pSPORT1; Library constructed from cultures utilizing ammomium ions as a source of nitrogen"
//filizing ammomium ions as a source of nitrogen"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST 21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    992 CAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGG 1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        932 TAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACGGCTC 991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a3g03np.rl Neurospora crassa sexual cDNA library, Uni-zap vector system Neurospora crassa cDNA clone a3g03np 5', mRNA sequence. BG278355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86 CTGGTGGCCAAATGAGCTGAAACACCAAAATCCTGCGCCAGCACCAGCTGCTACCGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146 ATTCGCCAAGCAGTTCGACTACCCAGCCGCATTCAAAAGCTTGGATTACAATGGCCTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     812 TTATGGTCCTTTCTTTATTCGTATGCCTTGGCACGGTGCCGGAACATACAGGACATATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             872 TGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            752 AAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A group of expressed cDNA sequences from the wheat fungal leaf blotch pathogen, Mycosphaerella graminicola (Septoria tritici) Fungal Genet. Biol. 29 (2), 118-133 (2000) Contact: Hargreaves JA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          632 CTACTATCCAGAAACACTGGATTTAACTCCTGAGATTACACAGCCCTGAATCAAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Neurospora crassa.
Neurospora crassa
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 573;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 161; DB 10;
Pred. No. 1.4e-39;
0; Mismatches 187;
                                                                                           Cell Biology Department
ACR-Long Ashton Research Station
Long Ashton, Bristol, BS41 9AF, UK
Tel: +44(0)1275 392181
Fax: +44(0)1275 394281
Fax: +44(0)1275 394281
Insert Length: 2300 Std Error: 0.00
Seq primer: M13 reverse.
                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BG278355.1 GI:13074577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10.8%;
60.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 10.8
Best Local Similarity 60.1
Matches 283; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG278355
                                                                                                                                                                                                                                                                                                                                                                                                                          131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             386
                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                       JOURNAL
MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 10
BG278355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                    FEATURES
     TITLE
```

```
**Retainback...*

E T (bases 1 to 546) .

S Freimoser,F.M., Screen,S., Baga,S., Hu,G. and St. Leger,R.J.

EST analysis of genes expressed by two different insect pathogenic fungi during optimized secretion of proteins

**Contact: Freimoser F. M.**

Department of Entomology

University of Maryland

4112 Plant Sciences Building, College Park, MD 20742, USA

Tel: 301 405 16 13

Fax: 301 314 92 90

Email: ff34@umail.umd.edu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1021 TGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGGATTTGCTGGCGGAA 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1177 TTGCCGCCACGCAGGAGTTATTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAG 1236
                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="Metarhizium anisopliae sf. acridum ARSEF 324"
/note="Vector: Unizap; Metarhizium anisopliae sf. acridum
was grwon on insect cuticle and chitin for 24 hours. A
cDNA library was constructed in the unidirectional Lambda
vector Unizap."
169 c 149 g 103 t 13 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATG 1296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSS 11-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCGCGGGCAACGTTGCCTCGAGTCCATGGGTTTCAAGACATACGGCTTCGCTGGAGGCC 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      184 GCAACGATGTCCGTTACAACGACAACGACGTCAAGAAGCGTGATCTCGAGTCCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        424 CCTTGNCACCAAAGGTTGGCCAAGNGAGCCCCCATTGANCAGCAGGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              961 IGCIGIGGCCAGICAAGAAAAAAAACGGCICCAGIAIIIICCIGGGGAGACCIGAIGGICC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1081 GAGAAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCTGACAACAAGCC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----TCTTGCAGATAACCGGGATAAAACGGGAAACTTCAGAAACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1297 AGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                364 AGGAGACTGTGGCCCTNATTGCTGGAGGCCACACCTTNGGCAAGACTCACGGTGCCCNGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1357 CTCCTGAAAATGTATTGGCGCAGGG---CCTGATGGTGCACCTGTGGAGGAGCAGGGAC
                              Sordariomycetes;
                            Eukaryota, Fungi, Ascomycota, Pezizomycotina, Sordariomyco
Hypocreales, Clavicipitaceae, mitosporic Clavicipitaceae,
                                                                                                                                                                                                                                                                                                                                                      /organism-"Metarhizium anisopliae var. acridum"/strain-"ARSEF 324"
/db_xref-"taxon:92637"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14; Length 546;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 154.6; DB 14; Length
Pred. No. 1.5e-37;
0; Mismatches 169; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA
        Metarhizium anisopliae var. acridum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    786 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          149 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tch 10.4%; al Similarity 60.2%; 297; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1414 TGGGATGGAAAAA 1426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCNGCTTGGAANA 496
                                                                Metarhizium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BH403595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Si
Matches 297;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 12
BH403595/c
LOCUS
        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                    AUTHORS
TITLE
                                                                                                                                                            JOURNAL
COMMENT
                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                              Contact: Bruce A. Roe, University of Oklahoma, broe@ou.edu
Department of Chemistry and Biochemistry
Advanced Center for Genome Technology, University of Oklahoma
620 Parrington Oval, Norman, OK 73019, USA
Tel: 405 325 4912
Fax: 405 325 7762
Email: broe@ou.edu
Contact Dr. Mary Anne Nelson, Department of Biology, University of
New Mexico, Albuquerque, NM 87131 (e-mail address manelson@unm.edu)
regarding clone availability
Seg primer: M13 Universal Reverse Primer
High quality sequence stop: 10cation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                113 Wetarhizium anisopliae sf. acridum ARSEF 324 Metarhizium anisopliae sf. acridum ARSEF 324 Metarhizium anisopliae var. acridum cDNA, mRNA sequence.

BQ142683.1 GI:20279742
                                                                                                                                                                                                                                                                                                                                                                                    /organism="Neurospora crassa"
/strain="wild type"
/db_xref="taxon:5141"
/clone="a3903np"
/clone_llb="Neurospora crassa sexual cDNA library, Uni-zap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    983 ATACGGCTCCAGTATȚTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGA 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1043 ATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCGGA 1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 TGTCACGGATGGCCGTGGAGGGGGTGGTGAGGGTTTTTGCTCCTCTCAACAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        863 GACATATGATGGCCGGGGGGGCGCCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAG 922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          923 CTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAA 982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              803 TTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 159.4; DB 12; Length 465;
Pred. No. 4e-39;
0; Mismatches 96; Indels 3;
Sordariales; Sordariaceae; Neurospora.

(bases 1 to 465)

Kupfer,D., Lai,H., Nelson,M. and Roe,B.
ESTS from a Neurospora crassa Sexual cDNA Library Unpublished (2001)
Other_ESTs: a3903np.fl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1103 CCTG---GTATACTGGGGGCCTGACAACA 1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST.
Metarhizium anisopliae var. acridum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301 CGAGTCTGTATACTGGGGTGCTGAGACCA 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10.7%;
69.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      230;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                    REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BQ142683
LOCUS
                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

1132

363

ð

ö g

```
AW180185 MAA Library Mycosphaerella graminicola cDNA clone MGA0268 5' similar to PEROXIDASE/CATALASE, mRNA sequence.

AW180185.1 GI:6447380
      ---GTAGGAGCTGAGCCTGAATTGAAGCTCAGGGATTAGGTTGCGCAAGT 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            191 ATTCGGCAAGCAGTTCGACCTACCACTCGACTTCAAGAAGCTTGGATTACAATGGCCTCA 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    871 ATGGCCGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGG 930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bukaryota; Fungi; Ascomycota; Pezizomycotina; Dothideomycetes et
Chaetothyriomycetes incertae sedis; Mycosphaerellaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1428 AAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     131 CTGGTGGCCAAATGAGCTGAACACCAAGATCCTGCGCCAGCACCGCTGCTACCGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  692 CTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGC-TGGATATGGAGGCTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  751 AAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    811 ATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 571)

Keon. J. P. R., Balley, A. M. and Hargreaves, J. A.

A group of expressed cDNA sequences from the wheat fungal leaf

blotch pathogen, Mycosphaerella graminicola (Septoria tritici)

Fungal Genet. Biol. 29 (2), 118-133 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 632 CTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="strit"
/db_xref="taxon:54734"
/clone="mgA0268"
/clone="mgA0268"
/clone="mgA0268"
/clone="wector: psPoRT1; Library constructed from utilizing ammonium ions as a source of nitrogen"
177 c 141 g 126 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 571;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 134.2; DB 10; Length
Pred. No. 5.2e-31;
0; Mismatches 168; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Mycosphaerella graminicola"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cell Biology Department
IACR-Long Ashton Research Station
Long Ashton, Bristol, BS41 9AF, UK
Tel: +44(0)1275 392181
Fax: +44(0)1275 394281
Email: john, hargreaves@bbsrc.ac.uk
Insert Length: 2500 Std Error: 0.00
Seq priner: M13 reverse.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                     Mycosphaerella graminicola.
Mycosphaerella graminicola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 61.0
Matches 268; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mycosphaerella.
                                                                                                                                                  1488 A 1488
                                                                                                                                                                                         252 A 252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  127
                         369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
MEDLINE
COMMENT
                                                                                                                                                                                                                                                     RESULT 13
AW180185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                       셤
                                                                                                       셤
                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                ò
                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
AG-ND-127D17.TF ND-TAM Anopheles gambiae genomic clone AG-ND-127D17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ä,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1019 CCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGC-TGGGATTTGCTGGCG 1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1078 GAAGAGAAGATGACTGGGACTCGGACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTG 1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1138 CAGATAACCGGGATAAAA-----ACGGGAAACTTCAGAAACCTCTTGCCGCCACG 1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1188 CAGATGGGACTTATTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCT 1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1248 TCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTG 1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAA 1367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1368 TGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGGATGGAAAAT 1427
                                                                                                                                                                                                                                                                                                                                                                                                                                  Email: bjloftugetigr.org
This clone is from an A. gambiae BAC library (ND-TAM) provided by
This clone is from an A. gambiae BAC library escencic
F.H. Collins and sequenced by The Institute for Genomic Research
(TIGR). The BAC library was generated from A. gambiae PEST strain
DNA. All DNA was extracted from newly hatched first instar larvae
tto minimize the inclusion of DNA from microorganisms that inhabit
the gut. The DNA is derived from mixed sexes of larvae. The BAC
library was constructed at Texas A&M Universty BAC Center
University, College Station, Texas 77843-2123, USA using a HindIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           430
                                                                                                                                                                                                                                Loftus, B.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                669 CCCGTACAGATGTATGGAAAGCCGATAAAGATGTATACTTGGGAAGATGAGAAAACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    489 GCTGCTAAAGATATCCGTGAIACATTTGGCCGTATGGGAATGAATGACGAGGAAACTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         429 GCGCTAATTGCTGGTGGCCACATTTGGTAAAACTCATGGTGCCGGAGATGCAGCGCTA
                                                                                                                                                                                                                            Shetty,J., Malek,J., Roo,H., Collins,F., Gardner,M. and Loftus
Direct Submission of BAC-end sequences from Anopheles gambiae
Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                        Anopheles gambiae
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Nematocera; Culicoldea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 17; Length 786;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 152.6; DB 17; Length
Pred. No. 8.2e-37;
0; Mismatches 169; Indels
                                                                                                                                                                                                                                                                                                           Contact: Brendan J Loftus
Department of Bukaryotic Genomics
The Institute for Genomic Research
9712 Medical Center Dr., Rockville, MD 20850, USA
Tel: 301 838 0208
Fax: 301 838 3543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:7165"
/clone="AG-ND-127D17"
/clone_lib="ND-TAM"
/note="Vector: pECBAC1; Site_1: HindIII"

    786
    70rganism="Anopheles gambiae"
/strain="PEST"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          244 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          148 g
                                                                                                     African malaria mosquito.
                                      BH403595 BH403595.1 GI:17349811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    trch 10.2%; sal Similarity 62.0%; 298; Conservative (
                                                                                                                                                                                Anopheles.
1 (bases 1 to 786)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    partial digest.
Seq primer: M13 For
Class: BAC ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          211 c
                       DNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              partial diges
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1308
                                    ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Source
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                 TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
```

'n

Gaps

.;

cultures

691 190 750

움 à 셤 ò g · & 셤

```
/db.xref="toxxon:148305"
/clone="mgap008xD18"
/clone=llb="mgap008xD18"
/clone=llb="mgaporthe grisea Ap Uni-Zap XR Library"
/sex="Matl-2 hermaphrodite"
/cell_type="Appressorium"
/cell_type="Appressorium"
/cell_type="Yector: pBluescriptSK+; Site_1: EcoRI; Site_2: XhoI; Unidirectional cloning. EcoRI side has T3 primer and predominantly 5; reads. T7 primer on XhoI side of insert. Appressorium library. Conidia were germinated on an inductive surface for 5-8 h. Sequences were processed by phredPhrap 991019 and trimmed according to phd files and for vector secs."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished (2002)
Contact: Ebbole DJ
Department of Plant Pathology & Microbiology
Texas A&W University
Peterson Bidg, MS2132, College Station, TX 77843-2132, USA
Tel: 979 845 4831
Email: d-ebbole@tamu.edu
Chromatogram file of this sequence is available, see contact person
Seat n hit (Nov. 11, 2001) gb|AAG60688.1|AF317697_1 (AF317697)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BM865076 474 bp mRNA linear EST 07-MAR-2002 mgap008xD18f.b Magnaporthe grisea Ap Uni-Zap XR Library Magnaporthe grisea cDNA clone mgap008xD18 5', mRNA sequence.
                                                                                                                                                                                                                                                   932 TAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCCAGTCAAGAAAAAATACGGCTC 991
                                                                           TGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGA 931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Magnaporthe grisea.
Magnaporthe grisea
Eukaryota; Fungl; Ascomycota; Pezizomycotina; Sordariomycetes;
Sordariomycetes incertae sedis; Magnaporthaceae; Magnaporthe.
1 (bases 1 to 474)
Ebbole, D. J., Yuan, J., Thomas, T. L., Bobrowicz, P. and Dean, R. A.
Expressed sequence tags from the rice blast fungus, Magnaporthe
                                                                                                                                                                                         444 CAACGCCAATCTCGACAAGGCTCGCCCCTGTTGTGGCCAATCAAG-CAAAATTCGGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 104.4; DB 14; Length 474; Pred. No. 1.6e-21;
       /organism="Magnaporthe grisea"
/strain="70-15"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       row: D column: 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              116 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seds.
                                                                                                                                                                                                                                                                                                                                            1052 ATTTAAAACGCTGGGAT 1068
                                                                                                                                                                                                                                                                                                                                                                                         562 TCTGCCCACNTTTGGTT 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BM865076
BM865076.1 GI:19232758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Plate: mgap008 row
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FORWARD: T3 primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 15
BM865076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                         셤
                                                                                                                                                             ò
                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                               ď
                                                                        ò
                                                                                                                                                                                                                                                        ð
                                                                                                                                                             CCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAA-TGTTGCCCTTGAATCCATG 1049
                                                                                                                                                                                                                                                                                                                                                                                                         AW180270 600 bp mRNA linear EST 17-NOV-1999 MgA0361f MgA Library Mycosphaerella graminicola cDNA clone MgA03615' similar to catalase-peroxidase, mRNA sequence.
490 ACAAAATCTCATGGGCCGACCTGTTCTCCTCACTGGGAAATGTCGCCATTGAGTCTATG 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /strain="Strit"
/db_xxef="taxon:54734"
/clone="MgA0361"
/clone="MgA Library"
/note="Vector: pSPORT1: Library constructed from cultures
/note="Vector amount on sa a source of nitrogen"
192 c 144 g 131 t 2 others
                                                                      931 ATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCCAGTCAAGAAAAATACGGCT 990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             632 CTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCC 691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    204 ATTCGGCAAGCAGTTCGACTACCCAGCCGCATTCAAGAGCTTGGATTACAATGGCCTCAA 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            752 AAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGGATTATGGTCA 811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          692 CTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTGAA 751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        264 GAAGGACTTGAACGACCTCATGACCGACTCGAAGGACTTCTGGCCAGCAACTTTGGCCA 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       812 TTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGA 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                et
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mycosphaerella

1 (bases 1 to 600)

Keon, J. P. R., Balley, A. M. and Hargreaves, J. A.

A group of expressed cDNA sequences from the wheat fungal leaf

blotch pathogen, Mycosphaerella graminicola (Septoria tritici)

Fungal Genet. Biol. 29 (2), 118-133 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Fungi; Ascomycota; Pezizomycotina; Dothideomycetes
Chaetothyriomycetes incertae sedis; Mycosphaerellaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 132.6; DB 10; Length 600;
Pred. No. 1.7e-30;
0; Mismatches 176; Indels 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                graminicola"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Hargreaves JA
Cell Biology Department
IACR-Long Ashton Research Station
Long Ashton, Bristol, BS41 9AF, UK
Tel: +44(0)1275 392181
Fax: +44(0)1275 394281
Email: john.hargreaves@bsrc.ac.uk
Insert Length: 2000 Std Error: 0.00
Seq primer: M13 reverse.

    .600
    /organism="Mycosphaerella

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mycosphaerella graminicola.
Mycosphaerella graminicola
                                                                                                                                                                                                                                                   1050 GGATTTAAAACGCTGGGAT 1068
                                                                                                                                                                                                                                                                             550 GGTCTGCCCACGTTTGGTT 568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AW180270
AW180270.1 GI:6447465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8.9%;
al Similarity 59.3%;
259; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 259; Conserv
                                                                                                                                                             991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                               RESULT 14
AW180270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
```

ά g ö 셤 ŏ g ŏ 1115

Gaps

1175

210

1235

270

1295

330

1355

à 셤

g

셤 ò 셤 ò 쉱 ð 셤

ó

```
B1750328 718 bp mRNA linear EST 25-SEP-2001 F902_07d09_R F902_AAFC_ECORC_Fusarium_graminearum_mycelium Glibberella zeae cDNA clone F902_07d09, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .718
/organism="Gibberella zeae"
/organism="DAOM 180378"
/db_xref="taxon:5518"
/clone="F902_07409"
/clone="F902_0AFC_ECORC_Fusarium_graminearum_mycelium"
/tissue_type="Mycelial tissue"
  rpm) at room temperature. Culture was harvested, blended, incollated into minimal medium as above for 24 h. Cells were harvested, washed with water and inoculated into minimal medium base lacking nitrogen source for 6 h. Sequences were processed by phredPhrap 991019 and trimmed according to phd files and for vector seqs."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       331 GAGGAGACCGTCGCTCTGATTGCAGGCGGTCACACTGTGGGCAAGACTCACGGTGCTGCA 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gibberella zeae.
Gibberella zeae
Ediberella zeae
Ediberella zeae
Ediberella zeae
Ediaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Hypocreales; Nectriaceae; Gibberella.
1 (bases 1 to 718)
1 (bases 1 to 718)
Couroux, P., De Moors, A., Hattori, J.I., Ouellet, T., Robert, L.S., Singh, J.A., Sprott, D. and Tinker, N.A.
Expressed Sequence Tags from Fusarium graminearum mycelium
Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1056 AAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGGACCTGGTATACTGG
                                                                                                                                                                                                                                                                                                                      1116 GGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACGGGAAACTTCAGAAACCT
                                                                                                                                                                                                                                                                                                                                                                                                          157 TCCGAGTCCAAGAAGGGCCACAAAGATA-----TTCACACGCGACCTGGAGAAGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1176 CTTGCCGCCACGCAGATGGGACTTATTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            211 GTGTCAGCTGCCCACATGGGTCTGATCTACGTCAACCCAGAGGGCCCTGATGGAATCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1236 GATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGGAGACTGTGGCCCTGATCGCGGGGGGCATACATTTGGTAAAGCACATGGTGCAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Harris, ilnda J.
Eastern Cereal and Ollseed Research Centre
Agriculture and Agri-food Canada
Bidg. 21, Central Experimental Farm, Ottawa, Ontario, KIA OC6,
                                                                                                                                                                                                                                                 ;
è
                                                                                                                                                                                                 6.5%; Score 97; DB 14; Length 417; 59.5%; Pred. No. 3.4e-19; tive 0; Mismatches 120; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tel: (613) 759-1314
Fax: (613) 759-6566
Email: harrislj@em.agr.ca.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BI750328.1 GI:15772130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1356 TCTCCTGAAAA 1366
                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                391 CCCTCTGACAA 401
                                                                                                                                                                                                                        Best Local Similarity
Matches 185; Conserv
                                                                                                                                    89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CANADA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1296
                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 17
BI750328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /cell_type="mycellum"
/note="Vector: pBluescriptSK-; Site_1: EcoRI; Site_2: XhoI
/note="Vector: pBluescriptSK-; Site_1: EcoRI; Site_2: XhoI
/note="Vectional cloning. EcoRI side has T3 primer and predominantly 5' reads. T7 primer on XhoI side of insert.
Nitrogen starvation library. Cells were incoulated into minimal medium and grown for two days with shaking (150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BM869928 417 bp mRNA linear EST 07-MAR-2002 mgns008xE12f.b Magnaporthe grisea NS Uni-Zap XR Library Magnaporthe grisea cDNA clone mgns008xE12 5', mRNA sequence.
  ö
                                                                                        212
                                                                                                                                                                                                                                               273 GAAGGACCTCCGTGCCCTGATGACCGACTCTCAGGAGTACTGGCCTGCTGCTTCGGCCA 332
                                             691
                                                                                                                                                                          213 ATACGATCCCAACTTCGACTATGCTGAAGCATTCAAGAGCCTCGACTACGAGGGCCTGAA 272
                                                                                                                                                                                                                      AAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATGGTCA 811
                                                                                                                                                                                                                                                                                                                                 CTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTCTGAA 751
                                                                                                                                                                                                                                                                                                          812 TTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGA 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ebbole, D.J., Yuan, J., Thomas, T.L., Bobrowicz, P. and Dean, R.A. Expressed sequence tags from the rice blast fungus, Magnaporthe
                                                                        CTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCC
                                                                                                                                                                                                                                                                                                                                                                                               872 TGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordarlomycetes;
Sordarlomycetes incertae sedis; Magnaporthaceae; Magnaporthe.
1 (bases 1 to 417)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:148305"
/clone="mgns008xE12"
/clone_lib="Magnaporthe grisea NS Uni-Zap XR Library"
/sex="Mat1-2 hermaphrodite"
  136; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          grisea"
  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FORWARD: T3 primer
BACKWARD: T7 primer
Plate: mgns008 row: E column:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .417
/organism="Magnaporthe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   932 TAACGTTAATCTGGATAAAGCC 953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAATGICICCTCGACAAGGCC 474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /strain="Guy11"
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BM869928.1 GI:19237610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Magnaporthe grisea
Magnaporthe grisea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (2002)
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Seq primer: T3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRimers
                                                                                                                                                                                                                                                                                                                                                     333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 16
BM869928
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
```

ð g à 셤 셤 ð 셤

à

셤

à 셤

ò

```
BM862783 27-MAR-2002 mgcm004xM19f.b Magnaporthe grisea CM Uni-Zap XR Library Magnaporthe grisea cDNA clone mgcm004xM19 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chromatogram file of this sequence is available, see contact person :Best nr hit (Nov. 11, 2001) pir|FB2584 catalase/peroxidase xF2233 [imported] - Xylella fast. . . 112 1e-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         948 AAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATACGCCTCCAGTATTTCCTGGGGA 1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCTGACAAC 1127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ebbole, D.J., Yuan, J., Thomas, T.L., Bobrowicz, P. and Dean, R.A. Expressed sequence tags from the rice blast fungus, Magnaporthe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               36 AAAGCTAGGCGGCTGATTTGGCCCCATCAAGCAAAAGTATGGCAACAAGATCTCATGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1008 GACCIGAIGGICCIGACIGGIAAIGIIGCCCIIGAAICCAIGGGAIIIAAAACGCIGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Magnaporthe grisea
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Sordariomycetes incertae sedis; Magnaporthaceae; Magnaporthe.
1 (bases 1 to 278)
                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Texas A&M University
Peterson Bldq, MS2132, College Station, Tx 77843-2132,
Tel: 979 845 4831
Fax: 979 845 6483
                                                                                                                                                                                                                                                                                                                                                                                            Score 82.8; DB 14; Length 291;
Pred. No. 9.5e-15;
0; Mismatches 67; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Ebbole DJ
Department of Plant Pathology & Microbiology
                                                /organism="Magnaporthe grisea"
/strain="Guyll"
                                                                                        /db_xref="taxon:148305"
          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: d-ebbole@tamu.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Plate: mgcm004 row: M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BM862783.1 GI:19230465
                                                                                                                                                                                                                                                                                                                                                                                              Query Match 5.6%;
Best Local Similarity 64.7%;
Matches 123; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Magnaporthe grisea,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FORWARD: T3 primer
BACKWARD: T7 prime
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1128 AAGCCTCTTG 1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          216 ACCACCTTTG 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Seq primer: T3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BM862783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1068
                               source
                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BM862783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
/lab_host="E. coli (Sure cells)"
/note="Vector: Bluescript SK+/Xhol-EcoRI; Site_1: EcoRI;
Site_2: XhoI; Mycellal tissue was collected from VB agar
plates after a growth period of 6-7 days at 25 C with 14
hrs (FL/UV) day ligth exposure. Mycella was ground in
liquid nitrogen prior it's storage at -80 C until RNA
extraction. Directional cloning with 5' end of cDNA cloned
into EcoRI site of pBluescript and 3' end of cDNA cloned
into XhoI site of pBluescript (Stratagene, La Jolla, CA)."

a 250 C 185 g 116 t 4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chromatogram file of this sequence is available, see contact person ;Best nr hit (Nov. 11, 2001) dbj|BAB03310.1| (AB011415) catalase PCR PRimers
                                                                                                                                                                                                                                                                                           m
                                                                                                                                                                                                                                                                                                                                                                                                              1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              07-MAR-2002
Magnaporthe
                                                                                                                                                                                                                                                                                                                             1153 AAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGGCATGGGGACTTATTATGTCAATC 1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACAT 1332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTG 1392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CACCTGTGGAGGAGCAGGGACTGGAAAAAAAAAAATGTGGTACAGGAAACGGCAAAT 1452
                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               243 TCGGCCGCATGG-CATGAACGAXGAAGAGACCGTTGCCTGATCGCTGGTGGCCACAC-G 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       358 ccgaccirdeccadeadeacirederedeccaacacaacaacaacaacaagaecceg 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ebbole, D.J., Yuan, J., Thomas, T.L., Bobrowicz, P. and Dean, R.A. Expressed sequence tags from the rice blast fungus, Magnaporthe
                                                                                                                                                                                                                                                                                                                                                                                                          1213 CTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                   301 resechadacechacesagersecreaheceaheceahececeshseces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Magnaporthe grisea.
Magnaporthe grisea
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Sordariomycetes innertae sedis; Magnaporthaceae; Magnaporthe.
                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mgcs014xPl5f.b Magnaporthe grisea CS Uni-Zap XR Library lgrisea cDNA clone mgcs014xPl5 5', mRNA sequence.
BN868464
BN868464.1 GI:19236146
EST.
                                                                                                                                                                                                                                                                                         .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Ebbole DJ
Department of Plant Pathology & Microbiology
Texas A&M University
Peterson Bldg, MS2132, College Station, TX 77843-2132,
Tel: 979 845 4831
Fax: 979 845 6483
                                                                                                                                                                                                                                                   Length 718;
                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1453 ATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 87.6; DB 13;
Pred. No. 4.8e-16;
; Mismatches 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BACKWARD: T7 primer
Plate: mgcs014 row: P column: 15
Seg primer: T3.
                                                                                                                                                                                                                                                                                       1;
                                                                                                                                                                                                                                               59.58;
                                                                                                                                                                                                                                                                  Best Local Similarity 59.5 Matches 200; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FORWARD: T3
                                                                                                                                                                                    163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         418
                                                                                                                                                                                                                                                                                                                                                                    123
                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 18
BM868464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
```

ä

Gaps

4

801

us-09-674-277-1.rst

```
540 bp mRNA linear EST 23-AUG-200:
FucusSST210 Fucus 18h embryo SST secretion library Fucus distichus
BU038189
                                                                                                                                                                                                                                                                                                                                                                                                                                                  802 ATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACA 861
                                                                                                                                                                                                                                                                                                                                                                                                    288 ACGCGCTCCGAAAAGATATTGTTGACATGCTCCACCGACTCGAAAGACTACTGGCCTGCTG 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             862 GGAC--ATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAA--CGTTTTGAACCGCTG 917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sudol, M.N., Singla, S. and Quatrano, R.S. polypeptides expressed in polarized
/db_xref="taxon:3012"
/clone_lib="Fucus 18h embryo SST secretion library"
/dev_stage="18h after fertilization"
/dev_stage="18h after fertilization"
/note="vector: psuc227M130R1 SST; Site_1: EcoRI; Site_2:
XhoI; authority=Fucus distichus (L.) Powell; EcoRI/XhoI
Iragments from Fucus _ZapII random-primade Fucus DNA
library were subcloned into EcoRI/XhoI sites of
pSUC277M130RI (Jacobs et_al. 1997. Gene 198: 289)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; stramenopiles; Phaeophyceae; Fucales; Fucaceae; Fucus. 1 (bases 1 to 540)
Belanger, K.D., Wyman, A.J., Sudol, M.N., Singla, S. and Quatrano, R.S. Identification of secreted polypeptides expressed in polarized
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1. 540
/organism="Fucus distichus"
/db_xref="taxon:3012"
/clone_lib="Fucus 18h embryo SST secretion library"
/clone_lib="Fucus 18h embryo SST secretion library"
/dev_stage="18h after fertilization"
/note="Vector: pSUC277M13ORI SST; Site_1: EcoRI; Site_2:
XhoI; authority=Fucus distichus (L.) Powell; EcoRI/XhoI
XhoI; authority=Fucus distichus (L.) Powell; EcoRI/XhoI
                                                                                                                                                                                                                                                                                                                                                      742 AGGCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fragments from Fucus ZapII random-primed Fucus cDNA library were subcloned into EcoRI/XhoI sites of pSUC2T7M13ORI (Jacobs et al. 1997. Gene 198: 289).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  918 AACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTG 967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
4.4%; Score 66; DB 14; Length 540;
Best Local Similarity 61.3%; Pred. No. 3.3e-09;
Matches 141; Conservative 0; Mismatches 85; Indels
                                                                                                                                                                                                                                                                Length 540;
                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                           85;
                                                                                                                                                                                                                                                                4.4%; Score 66; DB 14;
61.3%; Pred. No. 3.3e-09;
Live 0; Mismatches 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Colgate University
13 Oak Dr., Hamilton, NY 13346, USA
Tel: 315 228 7870
Fax: 315 228 7997
Email: kbelanger@mail.colgate.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualiflers
                                                                                                                                                                                         150 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fucus distichus zygotes
Unpublished (2002)
Contact: Belanger, KD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BU038189.1 GI:22473709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Department of Biology
                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 61.39
Matches 141; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fucus distichus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fucus distichus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POLYA-NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 21
BU038189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                            /clone_injem/covariaty
/clone_injem/covariaty
/sex="Mat1-2 hermaphrodite"
/ceal_type="mycellum"
/ceal_type="mycellum"
/coll_type="mycellum"
/note="Yector: pBluescriptSK-; Site_1: EcoRI; Site_2: XhoI
; Unidirectional cloning. EcoRI side has T3 primer and
predominantly 5' reads. T7 primer on XhoI side of insert.
Strain inoculated into complete medium grown for two days
at room temperature, 150 rpm, harvested, blended,
reinoculated into complete medium 24 h, room temperature,
150 rpm. Sequences were processed by phredPhrap 991019 and
trimmed according to phd files and for vector segs."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1116 GGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAAACGGGAAACTTCAGAAACCT 1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATCCTCTGGCTTCCGGGAAGATATCAGGGAAGCTTTTTCACGTATGGCATGGATGAT 1295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BU038121 540 bp mRNA linear EST 23-AUG-2002 FucusSST126 Fucus 18h embryo SST secretion library Fucus distichus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1056 AAAACGCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTCGGACCTGGTATACTGG 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTGCCGCCACGCAGATGGGACTTATTATGTCAATCCTGAAGGCCCCGGTGGAAAACCA 1235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Fucus districtions
Eukaryota; stramenopiles; Phaeophyceae; Fucales; Fucaceae; Fucus.
Eukaryota; stramenopiles; Phaeophyceae; Fucales; Fucaceae; Fucus.
1 (bases 1 to 540)
Elanger, K. D., Wyman, A.J., Sudol, M.N., Singla, S. and Quatrano, R.S.
Identification of secreted polypeptides expressed in polarized
Unpublished (2002)
Contact: Belanger, KD
Department of Biology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132 GTGTCAGCTGCCCACATGGGTCTGATCTACGTCAACCCAGAGGGCCCTGATGGAATCCCG 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: kbelanger@mail.colgate.edu
Predicted polypeptide contains an N-terminal signal sequence and
similarity to catalase protein (Bacillus subtilis).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCGAGTCCAAGAAGGCCACAAAGATA-----TTCACACGCGGACCTGGAGAAGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                5.3%; Score 79.2; DB 14; Length 278; 59.0%; Pred. No. 1.3e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches 103; Indels
                          /organism="Magnaporthe grisea"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Fucus distichus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13 Oak Dr., Hamilton, NY 13346, USA
Tel: 315 228 7870
Fax: 315 228 7997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGGAGACTGTGGCCCTGATCGCGGG 1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGGAGACCGTCGCTCTGATTGCAGG 277
                                                                        /db_xref="taxon:148305"
                                                                                                   /clone="mqcm004xM19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                     /strain="Guy11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDNA 5', mRNA sequence.
BU038121
BU038121.1 GI:22473625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Colgate University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 157; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fucus distichus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POLYA-NO
                                                                                                                                                                                                                                                                                                                                                                            64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               252
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local
       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BU038121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
```

EST 23-AUG-2002

ä

Gaps

```
AW792143 397 bp mRNA linear EST 01-MAY-2001 D01029-R Lambda Zap, Stratagene Blumeria graminis f. sp. hordei CDNA clone D01029 similar to catalase-peroxidase, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1302 ACTGTGGCCCTGATCGCGGGGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCT 1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BF739529

NCM10B4T3 Mycelial Neurospora crassa cDNA clone NM10B4 5' similar to catalase/peroxidase, Streptomyces reticuli, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1362 GAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGCAGGGACTGGGATGG 1421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1422 AAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCC 1481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oliver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             118 GCTAACAGCTATGCTCTGGAAAAGGTCCGGACACCATTACGAGTGGTCTTGAAGTCATC 177
                                                                                                                                                                                                                                                                                                                          .R.P. Gene identification in the fungal pathogen Blumeria graminis by expressed sequence tag analysis Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                           Blumeria graminis f. sp. hordel.
Blumeria graminis f. sp. hordei
Blumeria graminis f. sp. hordei
Eukaryota; Fungl; Ascomycota; Pezizomycotina; Leotiomycetes;
Erysiphales; Erysiphaceae; Blumeria.
1 (bases 1 to 397)
Thomas, S.W., Rasmussen, S.W., Glaring, M.A., Rouster, J.A. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.7%; Score 55.8; DB 10; Length 397; 59.9%; Pred. No. 5e-06; 1ive 0; Mismatches 72; Indels 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Blumeria graminis f. sp. hordei"
/db_xref="taxon:62688"
/clone="D01029"
                                                                                                                                                                                                                                                                                                                                                                                             Contact: Rasmussen, S.W.
Department of Yeast Genetics
Carlaberg Laboratory
10 Gl. Carlabergvej, DK-2500, Copenhagen, Denmark
Tel: 45 3327 4766
Fax: 45 3327 4766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone_lib="Lambda Zap, Stratagene"
/cell_type="conidia"
/lab_host="Hordeum vulgare"
a 97 c 96 g 85 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3;
5e-06;
72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          High quality sequence stop: 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                             AW792143.1 GI:13903740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BF739529.1 GI:12066125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 3.7
Best Local Similarity 59.9
Matches 112; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Neurospora crassa
Neurospora crassa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: swr@crc.dk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1482 TGGTCGA 1488
178 TGGACTA 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 178 TGGACTA 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POLYA-No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                       DEFINITION
                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                   RESULT 23
AW792143
                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 24
BF739529
                                                                                                                                                                            VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                           EST 01-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1302 ACTGTGGCCCTGATCGCGGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCT 1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1362 GAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGAGGAGGAGCAGGGATGG 1421
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Blumeria graminis f. sp. hordei.
Blumeria graminis f. sp. hordei
Blumeria graminis f. sp. hordei
Bukaryoria; Fundi, Ascomycota; Pezizomycotina; Leotiomycetes;
Erysiphales; Erysiphaceae; Blumeria.
1 (bases 1 to 396)
Thomas, S.W., Rasmussen, S.W., Glaring, M.A., Rouster, J.A. and Oliver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1422 AAAAATAAATGGGGAACGGAAAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCC 1481
                               802 AITATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACA 861
                                                                                                    22
                                                                                                                                                                                                                                                                                                                                                  AW792137

506 bp mRNA linear EST 01-MAY-20 D01025-R Lambda Zap, Stratagene Blumeria graminis f. sp. hordei CDNA clone D01025 similar to catalase-peroxidase, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gene identification in the fungal pathogen Blumeria graminis by
             AGGCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGG
                                                                                                                                                       GGAC -- ATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAA--CGTTTTGAACCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                        918 AACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTG 967
                                                                                                                                                                                                                                               3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 396;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               graminis f. sp. hordei"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         expressed sequence tag analysis
Unpublished (2000)
Contact: Rasmussen, S.W.
Department of Yeast Genetics
Carlsberg Laboratory
10 01. Carlsbergvej, DK-2500, Copenhagen, Denmark
Tel: 45 3327 4766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone_lib="Lambda Zap, Stratagene"
/cell_type="conidia"
/lab_host="Hordeum vulgare"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.7%; Score 55.8; DB 10;
ilarity 59.9%; Pred. No. 5e-06;
Conservative 0; Mismatches 72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ц
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Blumeria gra
/db_xref="taxon:62688"
/clone="D01025"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: swr@crc.dk
High quality sequence stop: 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97 9
                                                                                                                                                                                                                                                                                                                                                                                                                             AW792137.1 GI:13903734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1482 TGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                            AW792137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Simi
Matches 112; (
                                              288
                                                                                                                                                       862
           742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                RESULT 22
AW792137
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                  合
                                                                                                                                                     ò
                                                                                                                                                                                     셤
                                                                                                                                                                                                                          ŏ
           ð
                                           g
                                                                                à
                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δŽ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
```

57

ğ

ò

õ

```
Chlamydomonas reinhardtii.

Chlamydomonas reinhardtii.

Chlamydomonas reinhardtii

Bukaryota; Viridiplantae; Chlorophyta; Chlorophyceae; Volvocales;

Chlamydomonadaceae; Chlamydomonas.

I (bases 1 to 591)

Grossman, A., Chang, C.-W., Davies, J., Harris, E., Hauser, C., Lefebvre, P., McDermott, J.P., Shrager, J., Sillow, C. and Stern, D.

Analyses of the Chlamydomonas reinhardtii Genome: A Model,

Unicellular System for Analyzing Gene Function and Regulation in

Vascular Plants. Project: 963

L Unpublished (2001)

Contact: Charles Hauser

DCMB Box 91000
                                                                                                                                                                                                                                                                                                                                                                                                                 /note="vector: pBlueScript SK(+) vector; Site_1: EcoRI; Site_2: XhoI; The appressorium formation-specific cDNA library was constructed from conidia germinated for 5-8 hr on an inductive surface. The library contains over 55,000 clones with heart size of 1.5 kbp."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          b18/4487 591 bp mRNA linear EST 11-OCT-2001 963115H08.yl C. reinhardtii CC-1690, Stress condition I, normalized , Lambda Zap II Chlamydomonas reinhardtii cDNA, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                  /clone="mgct002xn01f"
/clone_lib="Magnaporthe grisea Appressorium Stage cDNA"
/dev_stage="Germinated conidia on apprressorium-inductive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   801 GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      90 GACAAGGAGACCGGCACTGGCGGCAGCAACGGTGCCATGCGCTTCTCGCCTTGAGGGT 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            921 AGCIGGCCGGAIAACGITAAICIGGAIAAAGCCCGICGAIIGCIGIGGCCAGICAAGAAA 980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Construction and sequence analysis of an appressorium stage cDNA library in the rice blast fungus, Magnaporthe grisea Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             861 AGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 634;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                           Contact: Ralph A. Dean
Contact: Ralph A. Dean
Fungal Genomics Laboratory
North Carolina State University
Campus Box 7251, Raleigh, NC 27695, USA
Tel: 919-513-0020
Fax: 919-513-0024
Email: ralph_dean@ncsu.edu
Seq primer: T3 primer (AATTAACCTCACTAAAGGG).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.4%; Score 50.2; DB 12;
ilarity 52.1%; Pred. No. 0.00041;
Conservative 0; Mismatches 103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               981 AAATACGCTCCAGTATTTCCTGGGGAGACCTGAT 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGTACCCTGGATCACCTACTCTGACCTCTGGAT 244
                                                                                                                                                                                                                                                                     /organism="Magnaporthe grisea"/strain="70-15"
/db_xref="taxon:148305"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BI874487.1 GI:16072491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Duke University
Durham, NC 27708-1000
Tel: 919 613 8159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Sim
Matches 112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BI874487
        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       //exx="Mating type A"
/tissue_type="Mycelium"
/dev_stage="Mycelium"
/dev_stage="Mycelium"
/dab_host="E. Coll"
/note="Vector: pBlueScript SK (-); Site_1: EcoR I; Site_2:
Xho i; 2% sucrose for 24 hours. CDNA directionally cloned
into pBluescript SK(-) using the Uni-ZAP XR vector system
(Stratagene, La Jolla, CA).

a 127 c 95 g 85 t 3 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mgct002xn01f Magnaporthe grisea Appressorium Stage cDNA Magnaporthe grisea cDNA clone mgct002xn01f 5', mRNA sequence.
ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         671 ACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACA 730
                                                                                                                                                                                      of
                                                                                                                                                                   ,D.O. Expressed sequences from conidial, mycelial, and sexual stages
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         210 CCTCGACTACGAAGGACCTCAAGAAGGATCTCACTAAAACTGACGACTCGCAAAAACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 731 GCTGGATATGGAGGCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGCCCTGCGGATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCAC-GGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes; Sordariomycetes incertae sedis; Magnaporthaceae; Magnaporthe. 1 (bases 1 to 634). Choi, W. and Dean, R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 53.2; DB 12; Length 399;
Pred. No. 3.4e-05;
0; Mismatches 84; Indels 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (FGSC 2489)"
                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                NM 87131,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Neurospora crassa"
/strain="74-0R23-IV A (FGSC 2/db_xref="taxon:5141"
/clone="NM10B4"
                                                                                                                                                                                                       Neurospora crassa
Fungal Genet. Biol. 21, 348-363 (1997)
97435549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 850 CCGGAACATACAGGACATATGATGGCCGGGG 880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGCCACCTACCGTGTCTAGGATGGCCCGCG 359
                                                                                                                                                                                                                                                                 Contact: Natvig, D.O./Nelson, M.A.
Department of Biology
University of New Mexico
Castetter Hall, Albuquerque, NM
Tel: 505 277 3411
Fax: 505 277 0304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone_lib="Mycelial"
                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
1. .399
                                                                                                                                                                                                                                                                                                                                                                                            ngp@biology.unm.edu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG810098.1 GI:14181078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 3.6%;
Best Local Similarity 59.2%;
Matches 125; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Magnaporthe grisea.
Magnaporthe grisea
                                                                                                                                                                                                                                                                                                                                                                                            Email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 25
BG810098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                          REFERENCE
                                                               AUTHORS
                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                  MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
```

ö

Gaps

ö

920

89

Lefebvre

```
202
                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BF251526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>8</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                           Another This library, constructed by John Davies and Jeffrey McDermott, combines cDNAs from CC-1690 cells grown to mid-log phase in TAP-N (30 min, lhr, 4hr), TAP-S (30 min, lhr, 4hr), TAP-S (30 min, lhr, 4hr), TAP-P (4hr, 12hr, 24hr), NO3 to NH4 (30min, lhr, 4hr) and NH4 to NO3 (30min, lhr, 4hr), Polya mRNA was purified from each sample, pooled and cDNA synthesized. The cDNA was directionally cloned into lambda Zap II (Stratagene) in the Ecorn (5) and XDNS (3) sites. PBluescript II Sr-plasmids were excised from the lambda ZAP clones by superinfection with Exassist (Stratagene) phage. The library was normalized using method 4 described in Bonaldo et al (1996) Genome Research 6: 791-806."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              981 AAATACGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTT 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EST 09-DEC-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 921 AGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAA 980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      275 GAGTGGGGCGCCGACGCGGGTCTGGCGGTGGCTCGCAAGCTGCTGGAGCCCGTCAAGGCC 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   335 GCGCACCCT---GGATCAGCTACGCCGACCTGGGAGCGTGGTGGCCATC 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chol.W., Fang, E., Sastnowski, W., Wing, R. and Dean, R.A. Expressed sequence characterization during appressorium formation in rice blast fungus, Magnaporthe grisea
                                                                                                /strain="CC-1690 wild type mt+ 21gr"
/db_xref="taxon:3055"
/clone_lib="C. reinhardtil CC-1690, Stress condition I,
normalized, Lambda Zap II"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mgae0002cG01f Magnaporthe grisea Appressorium Stage cDNA Library Magnaporthe grisea Appressorium Stage cDNA Library A1088496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      801 GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155 GACGACGGCAGCTACGCCCCGTGCTGGTGCGCCTGGCCTGGCACGCCTCCGGCACCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   861 AGGACATATGATGGCCGGGGGGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             215 GCCAAGAAGGACGCAGCGGCGCACCACCATGCGCTTTGCTCCCGAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Sordariomycetes incertae sedis; Magnaporthaceae; Magnaporthe.
1 (bases 1 to 877).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100 Jordan Hall, Clemson Universiy, Clemson, SC 29634, USA Tel: 864 656 5737
Fax: 864 656 4293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .,
.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 591;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                               /organism="Chlamydomonas reinhardtii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 47.8; DB 13;
Pred. No. 0.0023;
0; Mismatches 117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Dean, R.A.
Clemson University Genomics Institute
Clemson University
                                     Location/Qualifiers
                  Email: chauser@duke.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AI068496.1 GI:3391471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%;
52.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Magnaporthe grisea.
Magnaporthe grisea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1041 GAATCCATGGG 1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 392 GAGGAGATGGG 402
Fax: 919 613 8177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                ø
                                                                                                                                                                                                                                                                                                                                                                                                                                              91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Sim:
Matches 131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 27
AI068496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
BF251526 537 bp mRNA linear EST 15-NOV-2001 EST418787 Coccidioides immitis spherule cDNA library Coccidioides immitis cDNA clone CIAA110 5' sequence, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                      /note="Vector: pBlueScriptII SK(+) Vector; Site_1: ECORI; Site_2: XhoI; The appressorium formation-specific cDNA library was constructed form conidia germinated for 5-8 hr on an inductive surface. The library has an average insert size of 1.5 kbp."

248 c 243 g 178 t 6 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 89 GACAAGGAGACCGGCACTGGCGGCAGCAACGGTGCCAACCATGCGCTTCTCGCCTGAGGGT 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         921 AGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAA 980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 149 GCCACGGTGCCAACGCTGTCTGAAGGCCGCCGTGACTTCCTGGAGCCTATCAAGGCC 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDNA library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                         /dev_stage="Germinated conidia on appressorium-inductive surface"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Coccidioides immitis"
/db_xref="taxon:5501"
/clone_"clAAN10"
/clone_lb="Coccidioides immitis spherule cDNA library"
/dev_stage="spherule"
/lab_nost="SoLR"
                                                                                                                                           /organism="Magnaporthe grisea"
/strain="70-15"
/db_xref="taxon:148305"
/clone="mgae0002c601f"
/clone_lib="Magnaporthe grisea Appressorium Stage cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29 GACGAIGGTAGCTACGCCCCGTCCTGGCTTGGCATGCCTAGCGTACCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         861 AGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    801 GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Coccidioides immitis.
Coccidioides immitis.
Coccidioides immitis
Eucaryota; Prugi; Ascomycota; Pezizomycotina; Eurotiomycetes;
Onygenales; mitosporic Onygenales; Coccidioides.

1 (bases 1 to 537)
Gardner, M.J. and Kirkland, T.
Generation of ESTs from Coccidioides immitis spherule cDNA 11)
Conpublished (2000)
Contact: Malcolm J. Gardner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Department of Eukaryotic Genomics
The Institute for Genomic Research
712 Medical Center Drive, Rockville, MD 20850, USA
71: 301 838 9508
Fax: 301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 877;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 47; DB 9; Length 877
Pred. No. 0.0053;
0; Mismatches 105; Indels
Email: rdean@clemson.edu
Seg primer: T3 primer (AATTAACCCTCACTAAAGGG)
High quality sequence stop: 69.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               981 AAATACGCCTCCAGTATTTCCTGGGGAGACCTGAT 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    209 AAGTACCCCTGGATCACCTACTCTGGAT 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: gardner@tigr.org.
Location/Qualifiers
                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BF251526.1 GI:16931669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 3.2%;
Best Local Similarity 51.2%;
Matches 110; Conservative
                                                                                                                                                                                                                                                                                                      Library"
```

the

g ò 셤 셤

ò

셤 õ g

ò

```
92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                 COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 30
AW789645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                 BASE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .660

/organism="Chlamydomonas reinhardtii"
/strain="C-cl90 wild type mt+ 21gr"
/db_xref="taxon:3055"
/dlone_lib="C. reinhardtii CC-1690, Stress II (normalized
/clone_lib="C. reinhardtii CC-1690, Stress II (normalized
), Lambda Zap II"
/note="Vector: pBluescript II SK-; Site_I: ECORI; Site_2:
Xhol; Stress condition II library, constructed by John
Davies and Jeffrey McDermott, combines cDNAs from CC-1690
cells grown to mid-log phase in TAP (mH4 - containing)
and shifted to TAP - NO3- (24hrs); H2 production
conditions (0, 12hr, 24hr) see Melis et al.,(2000) Plant
Phys. 122: 127-135; TAP + H202 (1, 12, 24 hr); TAP +
Sorbitol (1, 2, 6, 24 hr); TAP + Cd (1, 2, 6, 24 hr).
POLYA mRNA was purlitied from each sample, pooled and cDNA
synthesized. The cDNA was directionally cloned into lambda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        660 bp mRNA linear EST 19-SEP-2001 Lambda Zap II (normalized), Lambda Zap II Chlamydomonas reinhardtii cDNA, mRNA sequence. B1718013 EST 15693708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Viridiplantae; Chlorophyta; Chlorophyceae; Volvocales; Chlamydomonadaceae; Chlamydomonas.

1 (bases 1 to 660)
Grossman, A., Chang, C. W., Davies, J., Harris, E., Hauser, C., Lefebvre Grossman, A., Chang, C. W., Salflow, C. and Stern, D. Analyses of the Chlamydomonas reinhardtil Genome: A Model, Unicellular System for Analyzing Gene Function and Regulation in
                                                                                                                                                                     ö
                                                                                                                                                                                                                                       170 TATGATGATGGAAGCTACGGACCTGTCCTTGTTCGTCTTCGCCTGGCACGCCAGTGGTACC 229
                                                                                                                                                                                                                                                                                                                                                                                    858 TACAGGACATATGATGGCCGGGGGGGCCCCAGTGGTGGTCAGCAACGTTTTGAACCGCTG 917
                                                                                                                                                                                                                                                                                                                                                                                                                              230 TACGATAAGGAAACTGGGACTGGAGGAAGCAATGGCGCTACCATGCGCTTCGCCCCATAG 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               290 TCTGACCACGGTGCCAATGCTGGATTGAAGGCTGCTAGAGATTTCCTCGAGCCAGTAAAG 349
                                                                                                                                                                                                                                                                                                   GCGGATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACA 857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         918 AACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAG 977
/note="Vector: pBluescript SK(-); Site_1: EcoR1; Site_2: Xho1"
                                                                                                                                                                                                              ATGGAGGCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCT
                                                                                                                           Score 45.8; DB 12; Length 537;
Pred. No. 0.0095;
0; Mismatches 137; Indels 0
                                                              130 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            978 AAAAATACGGCTCCAGTATTTCCT 1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           350 AAGAAATTCCCTTGGATTTCTTACT 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Vascular Plants. Project: 1031
Uppublished (2001)
Contact: Charles Hauser
DCMB Box 91000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tel: 919 613 8159
Fax: 919 613 8177
Email: chauser@duke.edu.
Location/Qualifiers
                                                            141 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chlamydomonas reinhardtii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chlamydomonas reinhardtii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Duke University
Durham, NC 27708-1000
                                                                                                                           3.1%;
llarity 48.3%;
Conservative
                                                            145 c
                                                                                                                                             al Similarity
128; Conserv
                                                              ĸ
                                                            121
                                                                                                                                                                                                              738
                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                 198
                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                 Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 29
BI718013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
```

```
AW/89645 Eambda Zap, Stratagene Blumeria graminis f. sp. hordei CDNA clone C01253 similar to catalase, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Blumeria graminis f. sp. hordei.
Blumeria graminis f. sp. hordei
Blumeria graminis f. sp. hordei
Eukaryota; Pungi; Ascomycota; Pezizomycotina; Leotiomycetes;
Erysiphales; Erysiphaceae; Blumeria.
1 (bases 1 to 335)
Thomas, S.W., Rasmussen, S.W., Glaring, M.A., Rouster, J.A. and Oliver
                                                                                                                                                                                                                                                                                                       860
                                                                                                                                                                                                                                                                                                                                                                                                861 AGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAAC 920
                                                                                                                                                                                                                                                                                                                                                465 GACGACGCCAGCTACGGCCCCGTGCTGCTGGCTGGCCTGGCACGCCTCCGGCACCTAC 524
                                                                                                                                                                                                                                                                                                                                                                                                                                         584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gene identification in the fungal pathogen Blumeria graminis by expressed sequence tag analysis Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                        525 GCCAAGAAGGACGGCGGCAGCGAACAGGGCCACCATGCGCTNTGCTCCCGAGTGC
                                                                                                                                                                                                                                                                                                     801 GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1008 GACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zap II (Stratagene) in the EcoRI (5') and XhoRI (3') sites. pBluescript II SK- plasmids were exclsed from lambda ZAP clones by superinfection with Exassist (Stratagene) phage. The library was normalized using method 4 described in Bonaldo et al., (1996) Genome Research 6: 791-806.
                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 921 AGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. .335.
/organism="Blumeria graminis f. sp. hordei"
/db_xref="taxon:62688"
/clone="C01253"
/clone="lib="rambda zap, Stratagene"
/call_type="conidia"
/lab_host="Hordeum vulgare"
4 a 70 c 78 g 91 t 2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 335;
                                                                                                                                                                                                                 Length 660;
                                                                                                                                           1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Rasmussen, S.W.
Department of Yeast Genetics
Carlsberg Laboratory
Tol. Carlsbergotj, DK-2500, Copenhagen, Denmark
Tel: 45 3327 5230
Fax: 45 3327 4766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                            Score 44.8; DB 13;
Pred. No. 0.023;
0; Mismatches 83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1068 TTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGA 1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 10;
                                                                                                                                         107 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 43.8; DB 1
Pred. No. 0.031;
0; Mismatches 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          High quality sequence stop: 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                         229 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AW789645.1 GI:13901242
                                                                                                                                                                                                            Query Match 3.0%;
Best Local Similarity 53.1%;
Matches 94; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ch 2.9%;
1 Similarity 66.3%;
63; Conservative (
                                                                                                                                                231 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: swr@crc.dk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
```

음

```
Drosophila melanogaster.

Exaryorta, Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;

Bukaryorta, Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;

Rooptera: Endopterygota; Diptera; Brachycera; Muscomorpha;

Ephydroidea; Drosophilidae; Drosophila.

Ephydroidea; Lo 1101)

S. Genoscope.

B. Direct Submission

AL Submitted (02-JUN-1999) Genoscope - Centre National de Sequencage:

BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr)

Determination of this BAC-end sequence was carried out as part of collaboration with the Berkeley Drosophila Genome Project (BDGP).

The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BAGs. For further information please see http://www.fruitily.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Gsoegawa and Aaron Mammoser in Pitera de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial EcoRI digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; cn bw sp, the same strain used for the BDGP's Pl and EST libraries. A more detailed description of the library and how to order individual BAC clones, the entire library or filters for hybridization from the BACPAC Resource Center can be found at http://bacpac.med.buffalo.edu/drosophila_bac.htm.
                                                         CNS001N6 1101 bp DNA linear GSS 03-JUN-1999
Drosophila melanogaster genome survey sequence TET3 end of BAC #
BACR04B08 of RPCI-98 library from Drosophila melanogaster (fruit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1097 TAAAAWAAAAAAAAAATKTTTTTTTTTTTTTTTTTTTXKBBBBBBYATTTTT 1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST 12-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            536 TAIGATAAAAAAACTCTICCTGTTCTGATTCTTCTGGCGCTATCGGGGAGCTTTTCTAC 595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               656 AACTCCTCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGGCTGATTTGATTATGC 715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    596 CGCTGTAGCCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               694 bp mRNA linear EST 12.
PTAM0150 Phaeodactylum tricornutum Uni-Zap XR Phaeodactylum
tricornutum cDNA 5', mRNA sequence.
BQS39839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; Score 40.4; DB 17; Length 1101;
; Pred. No. 0.79;
43; Mismatches 99; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             124 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           716 CACCAGATITCAACAGCIGGATAIGGÁGGCICIGAAAAA 754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GYWAAAWTTKGMATTACWGCKRAKGWAAAGWATKKAAAA 879

    1101 /organism="Drosophila melanogaster" /db_xref="taxon:7227"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             351 t
                                                                                                                  fly), genomic survey sequence. AL061217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone="BACR04B08"
/clone_lib="RPCI-98"
/note="end : TET3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                148 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BQ539839
BQ539839.1 GI:21395409
                                                                                                                                                                                      AL061217.1 GI:4939680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             153 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             325 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 77
                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
ORGANISM
     RESULT 32
CNS001N6/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 33
BQ539839
                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                  Chlamydomondas reinhardtii

Eukaryota; Viridiplantae; Chlorophyta; Chlorophyceae; Volvocales;

Chlamydomonadaceae; Chlamydomonas.

Chlamydomonadaceae; Chlamydomonas.

I (bases 1 to 640)

Grossman,A., Chang,C.-W., Davies,J., Harris,E., Hauser,C., Lefebvre

'P., McDermott,J.P., Shrager,J., Silflow,C. and Stern,D.

Analyses of the Chlamydomonas reinhardtii Genome: A Model,

Unicellular System for Analyzing Gene Function and Regulation in

Unpublished (2001)

Contact: Charles Hauser

DCMB Box 91000

Duke University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. 640
/organism="Chlamydomonas reinhardtii"
/strain="Cc1690 wild type mt+ 21gr"
/db_xref="taxon:3055"
/clone_lib="Cc. reinhardtii Cc-1690, Stress II (normalized
), Lambda Zap II"
/note="Vector: pBluescript II SK-; Site_1: EcoRI; Site_2:
Xhoi; Stress condition II library, constructed by John
Davies and Jeffrey McDermott, combines cDNAs from CC-1690
cells grown to mid-log phase in TAP (NH4+ containing)
and shifted to TAP - NO3- (24hrs); H2 production
conditions (0, 12hr, 24hr) see Melis et al.,(2000) Plant
Phys. 122: 127-135; TAP + H3C2 (1, 12, 24 hr); TAP +
Sorbitol (1, 2, 6, 24 hr); TAP + Cd (1, 2, 6, 24 hr)
PolyA mRNA was purified from each sample, pooled and cDNA
synthesized 'The cDNA was directionally cloned into lambda
Zap II (Stratagene) in the EcoRI (5) and XhoRI (3)
sites: pBluescript II SK- plasmids were excised from the
lambda ZAP clones by superinfection with ExAssist
(Stratagene) phage. The library was normalized using
method 4 described in Bonaldo et al., (1996) Genome
Research 6: 791-806:
                                                                                                                                                           EST 19-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             801 GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              469 GACGACGCCAGCTACGGCCCCGTGCTGGTGCGGCTGGCCTGGCACGCCTCCGGCACCTAC 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  861 AGGACATATGATGCCCGGGAGGCGCCAGTGGTGAGCAACGTTTTGAACCGCTGAAC 920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     529 GCCAAGAAGAAGGCCACCAGCAGCAGCACCATGCGCTTTGCTCCCGAGTGC
                                                                                                                                                      BI717417 640 bp mRNA linear EST 19-SEI 1031019G07.y1 C. reinhardtii CC-1690, Stress II (normalized), Lambda zap II Chlamydomonas reinhardtii CDNA, mRNA sequence. BI717417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       921 AGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAG 972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 640;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.8%; Score 41.4; DB 13; 52.3%; Pred. No. 0.27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82;
106 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: chauser@duke.edu.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                 Chlamydomonas reinhardtii
                                                                                                                                                                                                                                                           BI717417.1 GI:15693112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Durham, NC 27708-1000
Tel: 919 613 8159
Fax: 919 613 8177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match
Best Local Similarity 52.37
Post Local Similarity 52.37
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                  RESULT 31
BI717417
                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
```

ö

ô g ö 셤 ŏ

```
chicken.
                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 35
BG711981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                              Financial Librarian Englands Bacillariophyta; Bacillariophyceae; Bacillariophycidae; Bacillariophyceae; Bacillariophycidae; Bacillariophyceae; Bacillariophycidae; Bacillariophyceae; Bacillariophycidae; Bacillariophyceae; Bacillariophycidae; Bacillariophyceae; Bacillariophycidae; Bacillariophycidae; Bacillariophycidae; Bacillariophyceae; Bacillariophyceae; Bacillariophyceae; Bacillariophyceae; Bacillariophyceae; Genome properties of the diatom Phaeodactylum tricornutum Plant Physiol. 129, (2002) In press
Contact: Bowler C
Laboratory of Molecular Plant Biology
Statione Zoologica 'Anton Dohrn'
Villa Comunale, I-80121, Napoli, Italy
Tel: 39 081 583 3288/3211
Fax: 39 081 583 3288/3211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BH119903 543 bp DNA linear GSS 19-JUL-2001 RPCI-24-316M7, DNA sequence.
BH119903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    945 GATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGG 1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1005 GGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTG 1064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     310 rcgaacgeregecerarecerrrracececegaaccegaregececeaacecegaere 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         370 AAAGTAGCCCGCGACGCCCTGGAACCCGTCAAGGCCAAGTTCC---CCGGTCTATCGTAC 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                427 GCCGACCTCTACACCTACGCTGGTCGTCGCGGTGGAAGAGCCGGAGGCCCTATCATT 486
                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="Vector: Uni-Zap XR vector; Site_1: Eco RI; Site_2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         885 GCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTG 944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mus musculus
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 543)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               825 TTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGATGGCCGGGGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zhao, S., Merman, W., Malek, J., Shatsman, S., Akinret, B., Levins, Tsegaye, G., Geer, K., Krol, M., Shvartsbeyn, A., Gebregeorgis, E., Russell, D., de Jong, P. and Fraser, C.M.
Mouse BAC End Sequences from Library RPCI-24
Upublished (1999)
Other_GSSs: RPCI-24-316M7.TV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:2856" /clone_lib="Phaeodactylum tricornutum Uni-Zap XR" /cell_line="CCMP632"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 40; DB 14; Length 694; Pred. No. 0.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches 135; Indels
                                                                                                                                                                                                                                                                                                                                                                        /organism="Phaeodactylum tricornutum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1065 GGATTTGCTGGCGGAAGAGAAGATGACTGGGA 1096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   487 CCCTTTGCCACGGCCGCACGACGAATCGGA 518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           134
                                                                                                                                                                                                                                                                                                         Seq primer: T3 backward.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         192 g
                      Phaeodactylum tricornutum,
                                                                                                                                                                                                                                                                                             Email: chris@alpha.szn.it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BH119903.1 GI:14963415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 2.7%;
Similarity 49.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         228 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BH119903/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                             REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
KEYWORDS
                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
```

```
/cell_type="Spleen/Brain" /note="Vector: pTARBAC1; Site_1: BamH1; Site_2: BamH1; RPC1-24 Mouse BAC Library produced by Pieter de Jong. The library was cloned in the pTARBAC1 cloning vector at the BamH1 sites using MboI partially digested male C57BL/6J DNA."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                              Email: szhao@tigr.org
Clones are derived from the mouse BAC library RPCI-24. For BAC
Library availability, please contact Pieter de Jong
(pdejong@mail.cho.org). Clones may be purchased from BACPAC
Resources (http://www.chori.org/bacpac/orderingframe.htm). BAC end
page: http://www.tigr.org/tdb/bac_ends/mouse/bac_end_intro.html
Plate: 316 row: M column: 7
Seg primer: SP6
Class: BAC ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST 08-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              661 bp mRNA linear EST 08-MAY-200 pgill.pk010.923 Normalized Liver Library Gallus gallus cDNA clone pg11n.pk010.923 5' similar to dbj|BAB14712.1 (AK023886) unnamed BG711981 product [Homo sapiens]G, mRNA sequence. BG711981.1 GI:14005931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gallus gallus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae;
Phasianinae; Gallus.
1 (bases 1 to 661)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      590 TICTACCGCTGTAGCCGCTGATAAAAAGAGACTCAAAAATTTCTACTATCCAGAAACACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          650 GGATTTAACTCCTCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGGTGATTTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          363 AGGCTCAAATATTTTGTTTTTCTGCTCATTACCACAGTCTTGGTTACATTTTCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            303 ATTITAGACAGAATGITCCCAACIGGACAIAIAGITIITAIAAAAGITCICIGAATTIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 39.8; DB 17; Length 543; Pred. No. 0.8; 0; Mismatches 92; Indels 0
Department of Bukaryotic Genomics
The Institute for Genomic Research
9712 Medical Center Dr., Rockville, MD 20850, USA
Tel: 301 838 0200
Fax: 301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Burnside, J., Morgan, R.W. and Cogburn, L.A. Chicken ESTs from a normalized liver library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           170 t
                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                          /strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="RPCI-24-316M7"
/clone_lib="RPCI-24"
/sex="Male"
                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Molecular Endocrinology
University of Delaware
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Joan Burnside
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 2.7%;
Best Local Similarity 50.8%;
Matches 95; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 9 L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             770 GCTGACA 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             243 ATTTCCA 237
```

us-09-674-277-1.rst

ö

Gaps

ö

ö g

q ð

ð 셤

```
Submitted (23-70L-1999) Genoscope - Centre National de Sequencage: BP 191 91006 EVRY cedex - FRANCE (E-mail : seqrefégenoscope.cns.fr-Web: www.genoscope.cns.fr)

- Web: www.genoscope.cns.fr)

Determination of this BAC-end sequence was carried out as part of a collaboration with the European Drosophila Genome Project (EDGP) - http://www.edgp.ebi.ac.uk - This Drosophila melanogaster BAC library (Dros BAC) was made by Alain Billaud at CEPH (Centre d'Etude du Polymorphisme Humain) with funding provided by a MRC project grant. The DNA was prepared from embryos by Alain Bucheton and Genevieve Payan. It has been constructed in the vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CNSO18FX 803 bp DNA linear GSS 26-JUL-1999 Drosophila melanogaster genome survey sequence T7 end of BAC BACN13P04 of DrosbAC library from Drosophila melanogaster (fruit
                            /clone_lib="AT Drosophila melanogaster adult testes pOTB7"
                                                                                                                                         /note="Organ: ADULT festes; Vector: poTb7; Site_1: EcoR3 Site_2: Khol; The mRNA for the testis library was made from testes and seminal vessicles hand dissected from 0 day old ore males. RNA kindly provided by the lab of Margaret Fuller. Sized fractionated cDNAs were directly ligated into poTb7. Plasmid cDNA library."
                                                                                                                                                                                                                                                                                                                                                                                                                                             1329 ACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         688 GCTGCAGCTGCAGAAGAACATCAACGAGCTAAAAGCAAGAATCGTTGAATTGGAGTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drosophila melanogaster
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila
                                                                       /dev_stage="0-3 day old Ore-R males"
/lab_host="Plates AT.10-AT.120: DH5-alpha. Plates
AT.121-AT.319: DH5-alpha TonA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 17; Length 803;
                                                                                                                                                                                                                                                                                                                                                     Length 775;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             305 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          melanogaster'
                                                                                                                                                                                                                                                                                                                                                       Score 39.4; DB 12;
Pred. No. 1.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 39.4; D)
Pred. No. 1.4;
                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 803 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Drosophila/db_xref="taxon:7227"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fly), genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone_lib="DrosBAC"
/plasmid="pBeloBAC11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        128 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="BACN13P04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="end: T7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AL109287.1 GI:5629591
                                                                                                                                                                                                                                                                                                                                                     2.6%;
ilarity 57.9%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.6%;
                                                    /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 803)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        113 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
les 70; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pBeloBAC11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1449 A 1449
                                                                                                                                                                                                                                                                                  195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       748 A 748
                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CNS018FX/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                             Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BF494150
AT02578.5prime AT Drosophila melanogaster adult testes pOTB7
Drosophila melanogaster cDNA clone AT02578 5 similar to CLIP-190:
FBBN00055020 'cytoskeletal structural protein' located on: 2L
BF494150.
BF494150.2 GI:13684652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Stapleton, M., Brokstein, P., Hong, L., Agbayani, A., Baxter, E., Berman, B., Carlson, J., Champe, M., Chavez, C., Chew, M., Dorsett, V., Farfan, D., Frise, E., George, R., Gonzalez, M., Guarin, H., Harris, N., Li, P., Liao, G., Miranda, A., Misza, S., Mungall, C.J., Nunco, J., Pacleb, J., Paragas, V., Park, S., Phouanenavong, S., Wan, K., Yu, C., Lewis, S.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   175 TCAGAAGGGGGGGAACTCCGTCCGGCCAGTGAACCGTGCCACACTCCGGGCAGTACAT 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          235 GCCGCCGGCGCTGATACCGGCAAGAATGGTCGCAAACTCCCGCTCCGTGCAGCGGGCTAT 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCACAGGAGCAGCACCTCCAGTCGCTGCCCAAGCTGCCTTCGAGTCAGAGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: http://www.fruitfly.org/EST, estéfruitfly.berkeley.edu
hit genomic AE003655: arm:2L [17218419,17469171]
estimated-cytc:36C1-36C8: 04/07/2001
Plate: AT.25 row: G column: 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
(bases 1 to 775)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (2000)
On Dec 6, 2000 this sequence version replaced gi:11577451.
                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                Length 661;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                295 TTCAGGATACCCTTCGTCATCAACACGTACAAACCAGAAGACCAGC 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9 others
                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                 /clone="pglln.pk010.g23"
/clone_lib="Normalized Liver Library"
/sex="Male and Female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Drosophila melanogaster"
/db_xref="taxon:7227"
                                                                       Email: joan@UDel.Edu, www.chickest.udel.edu.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                          79;
                                                                                                                                                                                                                                                                                                                                                                                                DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lawrence Berkeley National Lab
One Cyclotron Rd, Berkeley, CA 94720, USA
Fax: 510 486 6798
    Newark, DE 19717, USA
                                                                                                                                                                                                                                                    /tissue_type="liver"
/lab_host="E.coli EMDH10B"
/note="Vector: pcMvSpORT 6"
1 208 c 184 g 119 t
                                                                                                                                                                                                                                                                                                                                                                                           Score 39.6; DE
Pred. No. 1;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BDGP/HHMI AT Drosophila EST Project
                                                                                                                 1. .661
/organism="Gallus gallus"
/db_xref="taxon:9031"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   High quality sequence stop: 697
Location/Qualifiers
1. .775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Paragas, V., Park, S., Phoue
Celniker, S. and Rubin, G.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                             2.7%;
52.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Stapleton, M.
40 Townsend Hall,
Tel: 302 831-1345
Fax: 302-831-3411
                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity 52.4 tes 87; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fruit fly.
                                                                                                                                                                                                                                                                                                                        141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             190
                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 36
BF494150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
COMMENT
                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
```

셤

요 ö g

ò

g

ð

```
GSS 03-JUN-1999
                                                         Brassica oleracea
Sukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids II; Brassicales; Brassicaceae; Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
Submitted (02-JUN-1999) Genoscope - Centre National de Sequencage :
BP 191 91006 EVRY cedex - FRANCE (E-mail : seqrefégenoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              434 TTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTTGACTT 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Drosophila melanogaster genome survey sequence T7 end of BAC # BACR22A01 of RPCI-98 library from Drosophila melanogaster (fruit fly), genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          314 TCAACACGTACAAACCAGAAGACCAGCTTTTTGTTTCTGACATCCACAAAGAAGGAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              581 TCATCTTCTACTCACCAGAAGAAAACGTTTCTCTCAGTTCTTGATTCCGTACTTCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   374 TTCAGGTCTGCGCAGCACTCAACGCCATCGTCAGTTGCGGCTTGGAACCCCTTAGTATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         641 CTTGTCTCTTCTTCTTCTTCTTCTTGTGTGTCCTCTTTTAGACTCTTTACACTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Drosophila melanogaster
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
1 (bases 1 to 1095)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sheared
linkers"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 829;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        /strain="rol000bH3"
/db_xref="texon:3712"
/clone="BOMBA22"
/clone=lib="Bo_2_3_KB"
/note="Vector: pHoS1; Site_1: BstXI; 2-3 kb
genomic DNA inserted into pHoS1 using BstXI
focts = 79 g 298 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       494 TIGIATACAACAIGCGAATITCCCTTAAICCGGAGCTATICGTAIGA 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         regercreaaccreacarraccrecaceaaaccraeaagarca 807
                                                                                                                                                                                                                                                                                                                                           Tom Osborn
                                                                                                                              1 (bases 1 to 829)
Town, C.D., Van Aken, S., Utterback, T. and Fraser, C.M.
Whole genome shotgun sequencing of Brassica oleracea
                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                9712 Medical Center Drive, Rockville, MD 20850, Tel: 301-838-3523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 38.2; DB 17;
Pred. No. 3.4;
); Mismatches 118;
                                                                                                                                                                                                                                                                                                                                         provided by
                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Brassica oleracea"
                                                                                                                                                                                                                                                                                    Tel: 301-838-3523
Fax: 301-838-0208
Email: cdtown@tigr.org
DNA is from a doubled haploid pu
Seq primer: TF
Class: sheared ends.
                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
1. .829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Drosophila melanogaster.
 GI:18829794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AL056173.1 GI:4936740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.6%;
                                                                                                                                                                     Whole genome shotgun s
Unpublished (2001)
Other_GSSs: BOWBA22TR
Contact: Chris Town
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.6
Best Local Similarity 48.0
Matches 109; Conservative
                                       Brassica oleracea
BH724397.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          280
                                                                                                                                                                                                                                                  TIGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           761
                                                                                                                                                                                                                                                                                                                                                                                                                        source
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CNS00AS8
                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dictyostelium discoideum.
Dictyostelium discoideum
Eukaryota; Mycetozoa; Dictyostellida; Dictyostellum.
Eukaryota; Mycetozoa; Dictyostellida; Dictyostellum.
Eukaryota; Mycetozoa; Dictyostellida; Dictyostellum.
I (bases 1 to 717)
Milhara, H., Salto, T., Takeno, K., Mizuno, H., Yoshida, M., Yoshino, R., Mitra, B.N., Pi, M., Sato, T., Takemoto, K., Yasukawa, H., Willams, J., Maeda, M., Takeuchi, I., Ochiai, H. and Tanaka, Y.
Developmental cDNA in Dictyostellum discoideum
Unpublished (1998)
Contact: Hideko Urushihara
Institute of Malogical Sciences
                                                                                                                                                                                                                                                                                                                                                                                                C90436 177 bp mRNA linear EST 20-APR-1998 C90436 Dictyostellum discoideum SS (H.Urushihara) Dictyostellum discoideum cDNA clone SS1494, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               784
                                                           112 MKBBKBBKKKDKDKKKAKKCCCCDKBKWKKKKKKKKKKTCCCWAMCAAAAAMMAAMDYAAT 653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   364
                                                                                                                                                                                                               508 CGAATTTCCCTTAATCCGGAGCTATTCGTATGATAAAAAAACTCTTCCTGTTCTGATTC 567
                                                                                                              568 TTCTGGCGCTATCGGGGAGCTTTTCTACCGCTGTAGCCGCTGATAAAAAAGAGACTCAAA 627
                                                                                                                                                                                         628 ATTICTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCCTGAATCAA 687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BOWBA227F BO_2_3_KB Brassica oleracea genomic clone BOWBA22, DNA BH724397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  725 TCAACAGCTGGATATGGAGGCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 38.2; DB 14; Length 717;
Pred. No. 3.1;
0; Mismatches 48; Indels 0
                                                                                                                                                                                                                                                                  ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCT 733
                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Dictyostelium discoideum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        University of Tsukuba
11-1-1 Tennoudal, Tsukuba, Ibaraki 305-8572,
Tel: 81-298-53-464
Fax: 81-298-53-6614
92;
91; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: hideko@biol.tsukuba.ac.jp.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /strain="AX4"
/db_xref="taxon:44689"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              C90436
C90436.1 GI:3060056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 Similarity 58.3 67; Conservative
 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             282
43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 67
                                                                                                                                                                                                                                                                  688
                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 39
BH724397
 Matches
                                                                                                                                                                                                                                                                                                                                                             RESULT 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                 C90436/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
```

à g ð 셤

ö

640

433 700

COMMENT

source

FEATURES

BASE COUNT ORIGIN

ò g ద

à

쉽

å 셤 ŏ

ð

```
/tissue_inpe="roots of 'Supernod' plants"
//lab_host="Definellors"
/lab_host="DH10B"
//lab_host="DH10B"
//lab_host="DH10B"
//lab_host="DH10B"
//note="Vector: pBluescript II XR; Site_1: ECOKI; Site_2: XhoI; The manA was isolated from roots of Glycine max 'Supernod' plants generously donated by Dr. Gary Stacey. The Seedlings were innoculated with Bradyrhizoblum apponicus, strain USDA110 priot to harvest. Stratagene's cDNA synthesis Kit (catalog number 200401) was used to synthesize the CDNA. First-strand synthesis was performed with 5-methyl dCTP, hence the ligated CDNA was hemimethylated. A modification of Stratagene's first-strand synthesis primer was used. An 'anchor' nucleotide (V-A.C. or G) was added to the 3' end of the primer [GACAGAGAGAGAGAACATAGTCTCGAG(T)18V] to anchor the primer at the 5' end of the poly(A) tract. After second-strand synthesis, the CDNA ends were filled in with cloned Pfu DNA polymerase, ligated to EcoxI adapters and subsequently phosphorylated. The XhoI site within the first-strand synthesis primer was then restricted by their hemimethylated status. The CDNA constructs were size-fractionated with a 500bp cutoff, using GibcobRL Life Technologies' CDNA kize Fractionation Stratagene's appear to contain recombinant plasmids with CDNA in series. The combinant plasmids white and blue colonies appear to contain recombinant plasmids with cDNA inserts. based on size of master plasmids with cDNA inserts.
                                                                                                                                                                                                                                                                                                          This clone is available through: ResGen, Invitrogen Corp. 2130 South Memorial Parkway Huntsville, AL 35801 For further information call: (800)-533-4363 or contact via email: ccuêresgen.com Insert Length: 1196 Std Error: 0.00 High quality sequence stop: 422.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             plasmids with cDNA inserts, based on size (n-25). This library was constructed by Dr. Paul Keim and Dr. Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 999 TCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAA 1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        819 CCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGATGGCCGG 878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         252 GGACTGGAAACAGCACTTGCCTTCTGTGAGGAAGTGAAGGCCAAACA---TCCAAAAATT 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         195 GGAGGCCCTAATGGTTCTATCAGAAACAGACAAGAGTTGAATCAC---GCAGCAAACAAG 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      939 AATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACGGCTCCAGTATT 998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       879 GGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGCCGGATAACGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Fat: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Glycine max"
/db_xref="taxon:3847"
/clone="GENOME SYSTEMS CLONE ID: Gm-c1028-2891"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches 132; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 37.8;
Pred. No. 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone_lib="Gm-c1028"
                                                                                                                                                                                                                                                                           Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 50.9
Matches 143; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Coryel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
- Web : www.genoscope.cns.fr)
Determination of this BAC-end sequence was carried out as part of a collaboration of this BAC-end sequence was carried out as part of a collaboration with the Berkeley Drosophila Genome Project (BDGP).
The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitfly.org The BDGP Drosophila melanogaster BAC ilbrary was prepared by Kazutcyo Osocgawa and Aaron Mammoser in Piteter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The ilbrary is named RPCI-98 and was constructed by partial ECORI digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; on bw sp, the same strain used for the BDGP's and how to order individual BAC clones, the entire library and how to order individual BAC clones, the entire library or found at http://bacpac.med.buffalo.edu/drosophila_bac.htm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Shoemaker, R., Kein, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wyller, T., Onderwood, R., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R. and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AW707196 599 bp mRNA linear EST 03-DEC-2001 sk22a06.yl Gm-c1028 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-c1028-2891 5' similar to TR:Q39780 Q39780 ASCORBATE PEROXIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             441 INTININSSSNINNINNSSSANNAANNINSSSNINTSNINNINNINANAAANTINNINTINIT 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              352 GACAICCACAAAGAAGGGAATATTCAGGTCTGCGCAGCACTCAACGGCATCGTCAGTTGC 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      621 TANNTANANNTAAAATTTTTWATTTTTTAAANCSSNTNNSSSNNSNNNTNNAAASNNNNTT 680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            472 GTTGCATCAATAAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTA 531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               292 TATTTCAGGATACCCTTCGTCATCAACACGTACAAACCAGAAGACCAGCTTTTTGTTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               501 NANNINSSSGNTTTNISSINNINTNINNTNINNINNNNNNNNSSSSSSAANANNISNSNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.6%; Score 38.2; DB 17; Length 1095; 22.4%; Pred. No. 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       527 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Drosophila melanogaster"
/db_xref="taxon:7227"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29; Mismatches 169;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       233 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="BACR22A01"
/clone_lib="RPCI-98"
/note="end : T7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;, mRNA sequence.
AW707196
AW707196.1 GI:7591464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           532 TTCGTATGATAAAA 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | :: | ||::||
681 TSSSNSTINTAVVAA 695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 599)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  57; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Glycine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S1
Matches 57;
```

Gaps

; 9

Length 599;

DEFINITION

ACCESSION VERSION KEYWORDS

RESULT 41 AW707196

ORGANISM

REFERENCE AUTHORS

```
A1980795 652 bp mRNA linear EST 07-MAY-2001 pat.pk0033.f8.f chicken activated T cell cDNA Gallus gallus cDNA clone pat.pk0033.f8.f 5' similar to amyloid precursor protein, mRNA
                                                                                                                                                                       999 TCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAA 1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1210 ATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAG 1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1270 CTTTTTCACGTATGCCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGCCATA 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1330 CATTIGGTAAAGCACAIGGIGCAGCGICTCCIGAAAAAGTATIGGCGCAGGGCCIGAIG 1389
                                                                                                                                                                                                  62 CAGTIGAACTICTICCAGIGGAGAGTICAGICTGAGCTICAGCCAIGGCATC 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianidae; Bullus.

1 (bases 1 to 652)
Tirunagaru,V.G., Sofer,L., Cui,J. and Burnside,J.
An expressed sequence tag database of T-cell-enriched activated chicken splenocytes: sequence analysis of 5251 clones
Genomics 66 (2), 144-151 (2000)
    GGAGGCGCCAGTGGTCAGCAACGTTTTGAACCCCTGAACACCTGGACGCTGATAACGTT
                                          210 GGAGGCCCTAATGGTTCTATCAGAAACAGACTGAATCAC---GCAGCAAACAAG
                                                                                     GGACTGGAAACAGCACTTGCCTTCTGTGAGGAAGTGAAGGCCAAACA---TCCAAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 AACCTAGAATCAGCTATGGAAATGATGCTCTCATGCCTTCATTGACGGAAACTAAGACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 9; Length 652;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
1. .652
/organism="Gallus gallus"
/db_xref="taxon:9031"
/clone="pat.pk0033.f8.f"
/sex=male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           splenic T cell"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97; Indels
                                                                                                                                                                                                                                                            1059 ACCCTGGGATTTGCTGGCGGAAGAAGATGACTGGGAGTC 1099
                                                                                                                                                                                                                                                                                     joan@UDel.Edu, www.chickest.udel.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Molecular Endocrinology
University of Delaware
40 Townsend Hall, Newark, DE 19717, USA
Tel: 302 831-1345
Fax: 302-831-3411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               =
=
=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 37.8; DB
Pred. No. 3.9;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /cell_type="Con A-activated
/lab_host="E.coli TOP10 F'"
/note="Vector: pcDNA3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        166 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   165 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             = =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GI:5883823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Joan Burnside
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 2.5%;
Best Local Similarity 49.7%;
Matches 96; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      124 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seq primer: T7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gallus gallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AI980795
AI980795.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               =
=
=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      chicken.
  879
                                                                                                                                267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                    RESULT 43
AI980795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                          셤
                                                                                     à
                                                                                                                                                         · à
                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Anote—Worder paluescriptII SK+; Site_I: ECORI; Site_2:
KhoI: This CDNA library was constructed from mRNA isolated
from etiolated hypocotyl tissue of 9-10 day old seedlings
of the cultivar Williams 82. Complementary DNA was
synthesized from mRNA using a primer consisting of a
poly(dr) primer with a xhoI restriction site. EcoRI
adapters were ligated to the blunt-ended cDNA fragments
followed by digestion with ECORI and XhoI. The CDNA
fragments were directionally chomed into the ECORI.
restriction site of the pBluescript vector. The ligated
cDNA fragments were transformed into DHIOB host cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: est@watson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-433 or contact via email: ccu@resgen.com
Insert Length: 1062 Std Error: 0.00
High quality sequence stop: 426.
                                                                                                                                                                                                                                                                                                                                                                                                                                               Shoemaker, R., Kelin, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, M., Schurk, R., Hitter, E., Kohn, S., Gibbons, M., Pape, D., Harvey, M., Schurk, R., Waterston, R. and Wilson, R.
Public Soybean EST Project
Unpublished (1999)
                                                                                                                                                BES56340 61-20145 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-c1045-1868 5' similar to TR:Q39780 Q39780 ASCORBATE PEROXIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /tissue_type="Hypocotyl, 9-10 day old etiolated seedlings"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2
                                                                                                                                                                                                                                                                                                                       Glýcine max
bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Randy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATGATGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Gibco BRL). This library was constructed by Dr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .635
/organism="Glycine max"
/db_xref="taxon:3847"
/dlone="GENONE SYSTEMS CLONE ID: Gm-c1045-1868"
/clone_lib="Gm-c1045"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 635;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
1059 ACGCTGGGATTTGCTGGCGGAAGAGATGACTGGGAGTC 1099
                      369 ACTATTAACTTTGTTCCGGGGAGAAAAGATTCATTGGAATC 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 37.8; DB 10;
Pred. No. 3.8;
0; Mismatches 132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      146 g
                                                                                                                                                                                                                                                          BE556340.1 GI:9820830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.5%;
50.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 635)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Shoemaker.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        137 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 143; Conservative
                                                                                                                                                                                                                 mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                      ;, mRNA :
BE556340
                                                                                                                                                                                                                                                                                                     soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                     RESULT 42
BE556340
                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
ð
                                    셤
```

ö

Gaps

ő

ö

Gaps

ö

셤

å 셤 ORGANISM

VERSION KEYWORDS SOURCE

ACCESSION

RESULT 44 AW180016

rocus

AUTHORS TITLE

REFERENCE

JOURNAL MEDLINE COMMENT

```
BQ611766 587 bp mRNA linear EST 26-JUN-2002 sap65a03.yl Gm-c1087 Glycine max cDNA clone SOYBEAN CLONE ID: Gm-c1087-5382 5' similar to TR:Q9SXL5 Q9SXL5 CHLOROPLAST ASCORBATE PERCURSOR;, mRNA sequence.
                                                            Wellcome Trust Genome E-mail contact:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Shoemaker, R. Reim, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, Shoemaker, R., Reim, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Underwood, K., Steptco, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R. and Wilson, R.
Dubblic Soybean EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
Humphray,S.J., Huckle,E. and Hunt,S.E.

Direct Submission
Submitted (06-JUN-2002) The Sanger Institute, Wellcome Trust Genom
Campus, Hinxton, Cambridgeshire, CB10 1SA, UK. E-mail contact:
humquery@anger.ac.uk Unpublished
This sequence was generated from the SP6 end of BAC 22018, 22018 part of the Daniokey Pilot BAC Library created by R. Plasterk and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 630 ATATATACATGGAGTATGAGTATCATATTGTTTTGTGTTTTTTTAATTCAGCACTTATA 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               506 TGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATAAAAAACTCTTCCTGTTCTGAT 565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTTCTGGCGCTATCGGGGAGCTTTTCTACCGCTGTAGCCGCTGATAAAAAGAGACTCA 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAATTTCTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAGCCCTGAATC 685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    510 TCTTCTTTGACATTCAGATGATCTTTTTTTGTCATTAAACACTCATTAATATTAATAGC 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          446 ATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTTGACTTTTGTATACAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1800
                                                                                                                                                                                                 Further details: http://www.sanger.ac.uk/Projects/D_rerio/
Location/Qualifiers
1. .630
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 630;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches 129;
                                                                                                                                                                                                                                                                /organism="Danio rerio"
/db_xref="taxon:7955"
/clone="brkey-2018"
/tissue_type="Testis"
/note="vector pindigobac-536"
) a 59 c 82 g 230 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 37.6;
Pred. No. 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BQ611766
BQ611766.1 GI:21601435
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 2.5%;
Best Local Similarity 47.1%;
Matches 115; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAAT 689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      390 TAAT 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Glycine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       soybean.
                                                                                                                                                                                                                                                                                                                                                                                        259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        989
                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
            AUTHORS
TITLE
JOURNÁL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BQ611766
                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                  osi op mRNA linear EST 17-NOV-1999 MGA0072f MgA Library Mycosphaerella graminicola cDNA clone MGA0072 5' similar to catalase-peroxidase, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GSS 06-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cultures
              122 CCTTTGGTGTTGATTCTGTTCCAGCCAATACTGAAAATGAAGTTGAGCCTGTTGATGCCC 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopteryg11; Neopteryg11; Teleoste1; Ostariophys1; Cypriniformes; Cyprinidae; Danio.
1 (bases 1 to 630)
                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Fungi; Ascomycota; Pezizomycotina; Dothideomycetes et
Chaetothyriomycetes incertae sedis; Mycosphaerellaceae;
Mycosphaerella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Keon, J.P.R., Bailey, A.M. and Hargreaves, J.A.
A group of expressed coln sequences from the wheat fungal leaf
blotch pathogen, Mycosphaerella graminicola (Septoria tritici)
Fungal Genet. Biol. 29 (2), 118-133 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DARZ2018S 630 bp DNA linear GSS 06-JUN-
Danio rerio genomic clone DKey-22018, genomic survey sequence.
AL745989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="MgA Library"
/note="Vector: pSPORT1; Library constructed from
utilizing ammonium ions as a source of nitrogen"
1 204 c 160 g 117 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1442 AAACGCCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGAC 1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 37.6; DB 10; Length 627; Pred. No. 4.4; O. Mismatches 44; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Mycosphaerella graminicola"
/strain="Strit"
/db_xref="taxon:54734"
/clone="MgA0072"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Hargreaves JA
Cell Biology Department
IACR-Long Ashton Research Station
Long Ashton, Bristol, BS41 9AF, UK
Tel: +44(0)1275 392181
Fax: +44(0)1275 394281
Email: john.hargreaves@bbsrc.ac.uk
Insert Length: 2500 Std Error: 0.00
Seq primer: M13 reverse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                Mycosphaerella graminicola.
Mycosphaerella graminicola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AL745989.1 GI:21349287
                                                                                                                                                                                                                                                                                             AW180016
AW180016.1 GI:6447211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.5%;
                                                            1390 GTGCACCTGTGGA 1402
                                                                                      | || || ||94
GCCCAGCTGCAGA 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 627)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
Matches 64; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20374020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSS
                                                                                                     182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DR22018S/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
```

FEATURES

ORIGIN

ACCESSION

LOCUS

RESULT 45

ద õ g

á

VERSION KEYWORDS

REFERENCE

```
AW981658.1 GI:8173224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bonaldo."
124 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          loblolly pine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pinus taeda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Si
                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                 JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 48
AW981658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                FEATURES
 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                     This clone is available through: ResGen, Invitrogen Corp. 2130 South Memorial Parkway Huntsville, AL 35801 For further information call: (800)-533-4363 or contact: ccu@resgen.com web site:
www.resgen.com E. C. Omp. Sep primer: -40MP from Gibco
High quality sequence stop: 431.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4/0 DP mRNA linear EST 22-JAN-2001 hu62a05.xl NCI_CGAP_Brn41 Homo sapiens cDNA clone IMAGE:3174440 3', BF940954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        981 AAATACGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTT 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       861 AGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAAC 920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      921 AGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAA 980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          345 GAGCATGCCAACGCCGGCCTCCAGGTCGCTCGCGGACCTTCAGGAACCCATCAAGAAG 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         405 CAGT---TCCCTTGGATCAGCTATGCAGACCTGTGNACCTGGCTGCTGCTGCTAGCAGTT 461
                                                                                                                                                                                                                         /tissue_type="Roots"
/lab_host="DH10B"
/note="Vector: pBluescript II SK+; Site_1: EcoRI; Site_2:
Xhoi; The mRNA was prepared using polyatract mRNA system
from PROMEGA. The CDNA was prepared using the STRATAGENE
kit. Complementary DNA was synthesized from mRNA using a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       225 GACGATGGCAGCTATGGCCTGTGTGAGGCTGGCCTGGCACGCCAGCGGCACCTAT 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 476)
NCI/NINDS-CGAP http://www.ncbi.nlm.nlh.gov/ncicgap.
                                                                                                                                                                                                                                                                                                                       primer consisting of a poly(dT) sequence with a XhoI restriction site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1041 GAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGAC 1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 587;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 37.2; DB 14; Length
Pred. No. 5.7;
0; Mismatches 149; Indels
                                                                                                                                           1. 587

/dysanism="Glycine max"

/dyxref="taxon:3847"

/clone="SOYBEAN CLONE ID: Gm-c1087-5382"

/clone_lib="Gm-c1087"
                                                                                                                            Location/Qualifiers
Fax: 314 286 1810
Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BF940954.1 GI:12358274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.5%;
ilarity 47.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          al Similarity
139; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 47
BF940954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
SOURCE
                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /ERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
```

```
National Cancer Institute / National Institute of Neurological Disorders and Stroke, Brain Tumor Genome Anatomy Project (CGAP/PSGAP), Tumor Gene Index (Unpublished (1998)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-rémail.nih.gov
Tissue Procurement: Robert Jenkins, M.D.
CDNA Library Preparation: M. Bento Sorses, Ph.D. and M.Fatima Bonaldo, Ph.D.
CDNA Library Arrayed by: The I.M.A.G.B. Consortium/LLML CONA Library Arrayed by: The I.M.A.G.B. Consortium/LLML Contact Clone distribution: NI-CGAP clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL, send email to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PC15B10 Pine TriplEx pollen cone library Pinus taeda cDNA clone PC15B10, mRNA sequence.
AW981658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1211 TCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGC 1270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1271 TTTTCACGTATGCCCATGCATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGCCATAC 1330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota: Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Conferopsida; Conferales; Pinaceae; Pinus; Pinus. I (bases I to 520)
Whetten, R.W., Kinlaw, C.S., Retzel, E. and Sederoff, R.R.
The Pine Gene Discovery Project
Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              373 CTTTGGTTTCCTACAGGCTGGATGGTATCCCCTGGAAGCCTTGTAGGCCCACAGCCCTG 432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1331 ATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAA----TGTATTGGCGCAGGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              253 TGCTCAGGCCCCCATAGGATAACAGATTGGTGGGGCCCTGGAGATAGAAGGAGAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            313 TATATGTGGTACTGGGGAGGAAGAAGAAGAAGTNANCCNNTTAGAGCCACTTTCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 476;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 12;
5.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1387 ATGGTGCACCTGTGGAGGAGCAGGGACTGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             84 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 37; DB 1
Pred. No. 5.8;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                        infoeimage.ilnl.gov
Seg primer: -400P from Gibco
High quality sequence stop: 475.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         136 g
```

COMMENT

source

FEATURES

BASE COUNT ORIGIN

ð g ò g õ g ò 셤 ŏ 셤 δŏ g

```
/db_xref="taxon:6279"
/clone_llb="Brugia malayi Genomic Bac Library 3"
/sex="Mixed (male and female)"
/tissue_type="whole parasite"
/dev_stage="microfilaria (LI)"
/dev_stage="microfilaria (LI)"
/note="Vector: pBAce3.6; Site_1: BamH I; Brugia malayi
genomic DNA was partially cleaved with Sauah I and size
fractionated 7,392 clones were generated with mean insert
size -48 kbp. The library was constructed by Claire
Whitton, Blaxter Nematode Genetics Lab, University of
Edinburgh, UK, and Dr Mike Quail, The Pathogen Sequencing
Unit, The Sanger Centre, Cambridge, UK."
                                                                                                                                                                                                                                                                                         Sequenced from the Brugia malayi BAC library constructed by Claire Whitton and Dr Mike Quail. The sequence was generated by The Pathogen Sequencing Unit, The Sanger Institute, Cambridge, UK in collaboration with Mark Blaxter, ICAPB, University of Edinburgh, UK. Seq primer: T7 (TAMIAGGACTCACTAIAGGS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              677 CCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGA 736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
Submitted (02-JUN-1999) Genoscope - Centre National de Sequencage :
BP 191 91006 EYRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr
- Web : www.genoscope.cns.fr)
                   malayi
Onpublished (2000)
Contact: Blaxter ML
Institute of Cell, Animal and Population Biology
University of Edinburgh
Ashworth Labs, King's Buildings, West Mains Road, Edinburgh, EH9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drosophila melanogaster genome survey sequence T7 end of BAC # BACRI1006 of RPCI-98 library from Drosophila melanogaster (fruit fly), genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      617 AGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATTACACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         324 ACAGACTAAATATTTGCAAACCATAAACTTGAAATAAAAATGACAAAATCACAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Drosophila melanogaster
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      737 TATGGAGGCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATT 789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match
2.5%; Score 37; DB 17; Length 637;
Best Local Similarity 50.9%; Pred. No. 6.9;
Matches 88; Conservative 0; Mismatches 85; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Brugia malayi"
                                                                                                                                                                                                          Tel: +44 131 650 6760
Fax: +44 131 670 5450
Email: mark.blaxter@ed.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Drosophila melanogaster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="TRS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AL058090.1 GI:4932671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genoscop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CNS005BT
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                      1...520
(Organism="Pinus taeda"
(Ab_xref="taxon:3352"
(Clone="pc15810"
(Clone="pc15810"
(Clone="lb="pine TriplEx pollen cone library"
(Clone="lb="pine TriplEx pollen cone library"
(dev_stage="limmature"
(lab_host="E. col! BM25.8"
(lab_host="col! BM25.8"
(note="organ: pollen cone; Vector: Lambda TriplEx; Site_1: Sfil (A); Site_2: Sfil (B); Immature pollen cones were collected in the early spring, frozen and used for mRNA isolation. The SMART-PCR method (Clontech) was used to prepare a library from 1 ug total RNA, using the Lambda TriplEx vector. Plasmid subclones in pTriplEx were recovered by cre-lox excision in E. coli strain BM25.8 and sequenced from the 5' end."

sequenced from the 5' end."
9 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             991 CCAGTATITCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGG 1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Onchocercidae; Brugia.

1 (bases 1 to 637)
Whitton,C., Daub,J., Ware,J., Quall,M., Hall,N., Barrell,B., Foster,J., Guiliano,D., Slatko,B. and Blaxter,M.
Genome survey sequences from the human parasitic nematode Brugia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1051 GATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAGAGATGACTGGGAGTCGGACCTGGTAT 1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BH762769 637 bp DNA linear GSS 20-MAR-2002
BMBAC330H08T7_PSU Brugia malayi Genomic Bac Library 3 Brugia malayi
Contact: Ross Whetten
Forest Biotechnology Group
North Carolina State University
Dept. of Forestry, NC State University, 6113 Jordan Hall, Raleigh
,NC, 27695-8008
NC, 27695-8008
Fax: 919-515-7801
Email: rosswhet@unity.ncsu.edu
Seq primer: 5' lambda TriplEx2 Sequencing Primer.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       811 ATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACATATG 870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            931 ATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCCAGTCAAGAAAAATACGGCT 990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             871 AIGGCCGGGGAGGCGCCAGIGGIGGICAGCAACGITITGAACCGCTGAACAGCIGGCCGG 930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               171 CGAAGACGGGTGGGGCAAATGGTTCCATTAGAAACGAGGAGGAACTCAATCACAGTGCAA 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       345 GAGGICCCACAATIGAGIIIGICCCIGGICGIAAGGATICACIGGGATCAACACGAGAAN 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brugia malayi.
Brugia malayi
Eukaryota; Metazoa; Nematoda; Chromadorea; Spirurida; Filarioidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                285 CAAATATTACTTATGCCGACCTTTATCAGCTGGTGGTGGTAGTTGCTGTTGAGGGTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 37; DB 10; Length 520;
Pred. No. 6.1;
0; Mismatches 157; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1111 ACTGGGGGCCTGACAACAA 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                405 GGGGCTTCCTGATGCNAA 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genomic, DNA sequence.
BH762769
BH762769.1 GI:19558318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 156; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local {
```

ö

ö

929 265 GSS 03-JUN-1999

VERSION KEYWORDS SOURCE ORGANISM

REFERENCE AUTHORS

TITLE

DEFINITION BH762769/c

RESULT 49

ACCESSION

```
sequence was carried out as part of a by Drosophila Genome Project (BDGP).
                                                                                                                                         melanogaster BAC library was prepared by Kazucoyo Osogawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial EcoRI digestion of Drosophila DNA provided by the BDGP from the isogenic strain of Drosophila DNA provided by the BDGP from the land and bow to order individual BAC clones, the entire library and how to order individual BAC clones, the entire library or filters for hybridization from the BACPAC Resource Center can be location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      354 CATCCACAAAGAAGGGAATATTCAGGTCTGCGCAGCACTCAACGGCATCGTCAGTTGCGG 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       697 TVCGVGTSGSGCTGMGMTHGKTMKGTMTMGGMTMTMTVTMTVGGKGKGKGGGGGGGGVKV 756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  294 TITCAGGAIACCCTICGICAICAACACGIACAAACCAGAAGACCAGCTITITGITICTGA 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             234 TGCCGCCGGCGCGCGGATACCGGCAAGAATGGTCGCAAACTCCCGCTCCGTGCAGCGGGCTA 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         414 CTTGGAACCCCTTAGTATTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGT 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     877 ТТТТМИТНИМТММИТМИТМТУТММТТИПМНТУТМТТТТТТМИМСННИМММТНWMYT 936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGCATCAATAAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATT 533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           937 ТИТИТНИММИММИМИТТИНИТТНИМТИМТИТТТТИСТИНИТТНТТИМИНИАМИ 996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Gaps
                                                              The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information
                                                                                       melanogaster genome using these BACs. For further inform please see http://www.fruitfly.org The BDGP Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 2.5%; Score 37; DB 17; Length 1024; Best Local Similarity 21.8%; Pred. No. 9.2; Matches 70; Conservative 108; Mismatches 143; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   294 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Drosophila melanogaster"
/db_xref="taxon:7227"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                308 t
                               collaboration with the Berkeley
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="RPCI-98"
/note="end : T7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         997 AWWYTMTWWWHAMWHTWHWT 1017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
```

Search completed: June 19, 2003, 03:33:42 Job time : 1591.88 secs THIS PAGE BLANK (USPTO)

nucleic search, using sw model June 17, 2003, 13:22:38

nucleic

₹

Run on:

```
M. tuberculosis H37
M. tuberculosis kat
Sequence encoding
Alcaligenes (Deley
Mycobacterium tube
Fusarium venenatum
Oligonuclectide fo
katG gene probe #3
katG gene probe #3
katG gene probe #3
                                                                                Oligonuclectide fo
Oligonuclectide fo
NatG gene probe #3
NatG gene probe #3
NatG gene probe #1
Oligonuclectide fo
Oligonuclectide fo
NatG gene probe #4
Aspergillus oryzae
TPRP-F1 gene, incl
Drosophila melanog
Drosophila melanog
Borrelia burgdorfe
Fusarium venenatum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human reproductive
Malze nitrite redu
Human immune/haema
Human breast cell
Human foetal liver
Probe #3110 for ge
Human brain expres
Human brain expres
                                                                                                                                                                                                                                                                                                                                                                                                           Human gene express
Staphylococcus aur
Staphylococcus aur
Staphylococcus aur
Human cDNA fragmen
Human foetal cDNA,
Human foetal cDNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA encoding novel
DNA encoding novel
DNA encoding novel
DNA encoding novel
DNA encoding novel
Chamloally treated
Human gene regulat
                                                                                                                                                                                                                                                                                  S. epidermidis ope
S. epidermidis gen
DNA encoding novel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA encoding novel
DNA encoding novel
DNA encoding novel
CDNA sequence enco
                                                                                                                                                                                                                                                                                                                                                     Chemically treated
Human gene regulat
Signal transductio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Breast cancer tumo
                                                                                                                                                                                                                                                                                                                                           Human immune/haema
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tumon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Breast tumour-spec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Retro virus vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human immune/haema
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drosophila melanog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human differential
Human bone marrow
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human neuroblastom
Staphylococcus epi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA encoding novel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ONA encoding novel
                                                                                                                                                                                                                                                                                                                                                                                                  Human endometrium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human breast
Human breast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA encoding
                                       AAV06554
AAA49864
AAF07490
ABQ23234
ABQ23235
                                                                                                             AAF95160
AAF95153
ABC32336
ABC32336
ABC32337
AAF11909
AAF11909
AAF11909
AAF11909
AAF11909
AAF3165
AAF3165
AAF3165
AAF3165
AAF3165
AAF3165
AAF3165
AAF3165
AAF3165
AAF3167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAH94492
AAH93991
AAS30450
AAL06230
AAQ12000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABL24238
AAS90422
AAH81799
AAH90058
AAS73484
AAS89265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAS90173
AAS09227
AAI94661
ABN92591
                             AAQ06815
                                                                                                                                                                                              1358
4320
5591
6000
14752
801
327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1844
16605
16605
457
457
457
457
457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3803
824
6240
526
6065
6065
544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           838
1074
274.2
274.2
250.4
224.6
122.8
95.2
91.4
 0 0 0 0 0 0 0 0 0 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0 0 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Microscilla furves
Mycobacterium tube
Mycobacterium tube
M. tuberculosis ca
Mycobacterium tube
Mycobacterium tube
Mycobacterium tube
Mycobacterium tube
Mycobacterium tube
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nucleic acid seque
                                                                                            ; Search time 250.397 Seconds (without alignments) 13391.616 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                     N_Geneseq_101002:*

| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1980.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1981.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1981.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1981.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1981.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1986.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1986.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1986.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1980.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1980.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1980.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1981.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl/NA1991.DAT:*
| SIDS2/gcgdata/geneseq/geneseqn-embl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            results predicted by chance to have a
1 to the score of the result being printed,
of the total score distribution.
                                                                                                                                                                                 1 ctgcagtccggagatgaaag............1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description
                                                                                                                                                                                                                                                                                4370478
             GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                               Potal number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                    2185239 seqs, 1125999159 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
```

AAZ36101 AAV06555 AAT89967 AAT90400 AAX00817 AAI99683 AAX00818 AAX00818

20 20 20 20 20 20 20 19

100.0 24.0 20.0 20.0 20.0 20.0 119.9

357.6 298.4 298.4 298.4 298.4 298.4 296.8

26459786

υu

a

BB

Query Match Length

Score 1489

Result Š

greater than or equal to derived by analysis of

greater 13 . 80

Pred. No score grand is

number of

the

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 150 summaries

Database

length: 0 length: 2000000000

sed

Minimum DB Maximum DB

Gapop 10.0 , Gapext 1.0

IDENTITY_NUC

Scoring table:

Searched:

US-09-674-277-1 1489

Perfect score:

:edneuce:

Enterohemorrhagic Escherichia coli; EHEC; katP gene; E. coli 0157:H7;

Escherichia coli.

WO9955908-A2.

04-NOV-1999

Nucleic acid sequence specific to enterohemorrhagic Escherichia coli,

(first entry)

11-FEB-2000

AAZ36101;

AAZ36101 standard; DNA; 1489 BP.

040	125	144	311	125	38	33	262	4	74.7	1		10	10	4	2	20	5 5	2 2	2 5	2 2	200	3 6	7	77	77	74	30	74	30	8	63	341	477	051	654	340	336	984	96	033	579	0 0	200	12	203	740	340	336	662	056	112	260	977	000	770	737	158	480	846	129	027	361	827	AAT32301 ABEG4606	, D
590 22	383 23	1732 22	1732 22	732 23	1003 22	154 23	154 23	317 23	226 21	226 21	226 22	226 22	590 22	909	459 22	59 24	765 22	710 22	77 970	811 22	540 24	697 20	30 55	30 24	149 21	086 22	086 22	388 22	38 22	510 22	10 22	10 22	10 22	10 22	10 22	57 22	570 22	325 24	408 23	739 23	22 22	201 23	22 700	460 23	22	16 22	16 22	5 22	5 22	5 22	27	27	77 C	٦ ر ه د	٦. د د د	22.2	5 24	5 24	465 19	761 21	739 24	125 24	125 24	6327 17 6	*7 /1.
4 2	4 2	4	4 2	4 2	2	2	2	2	2	2		2	2	1 7	2	2	2	. ~	. ~	. ~		. 60		8	8	9	.2	9	.2	2	5	5.	5.	5.			· ·	. ·	· ·	, i		• •		7.7		2.	2.	2	.; -		~ .	· ·	, c	• •	• ~		7	2	.5	2.	5	. i	7	70	;
3 33	4 33.	5 33.	6 33,	7 33,	8 33,	33,	0 33	1 33	33.	33.	33	33.	33.	7 33.	33.	33.	00 33.	01	020	03	04	05 32,	06 32.	07 32.	08 32.	09 32.	10 32.	11 32.	12 32.	13 32,	14 32.	15 32.	16 32.	17 32.	18 32.	19 32.	20 32.	32.	32.	32.	25.	30.	32	28 32.	29 32.	30 32.	31 32.	32 32.	33 32.	34 32.	32.	32.	38 32	30	32.	32.	12 32.	13 32.	14 32.	15 32.	16 32	17 32	32	150 32.4	2
	U			O									Ü					U	C		U					O	O	υ	Ο	O	O	υ	U	U	U		U I	U			ני		2)	t)	O	()	C)	r)	63	r) (٠, د	3 6	٠.			۲١	n		23					

AAZ36101 ŏ 셤 à g ö 셤 à Human breast cell Human foetal liver Probe #11883 for g Human brain expres Human bone marrow #2092 used t foetal liver foetal liver #9031 for ge #19594 for g bone marrow #12160 used #26005 used genome-deriv Membrane-bound pro PRO1154 (UNQ AOD9604-asso Human secreted pro Human colon cancer Human polynucleoti Pneumococcal patho Human prostate can Human differential Human prostate exp Human prostate exp Human prostate exp CDNA for ge for g Genomic sequence # Human cDNA sequenc luman nervous syst
luman reproductive Human cDNA clone (Fungal ZBC gene se Drosophila melanog Iron uptake ABC tr Human cDNA sequenc Hansenula polymorp assoc Human reproductīve robe #15232 used luman immune/haema rosophila melanog orosophila melanog orosophila melanog Human prostate exp Human brain expres secreted pro immune syste DNA transcription Dermatomyositis sp Human cDNA differe uman cDNA sequenc genome-deriv granulocytic Human transferase bone marrow Human cDNA clone yrococcus abyssi bone marrow bone marrow Human PRO1154 **Juman** cancer #18206 Human *'east* robe Probe Probe Ruman robe luman Human Juman luman Human Human Human Human

Claim 1; Fig 1; 48pp; French.

The present sequence is specific to enterohemorrhagic Escherichia coli (EHEC). The sequence is 99.9% homologous to the katp gene of E. coli 0157:H7 (nucleotides 407-1489 of the present sequence), and 95.8% homologous with IS91 of E. coli (nucleotides 1-406 of the present sequence). The present sequence is of plasmid origin. Fragments of the present sequence are used, as probes and primers, for detection of E. coli 0157:H7 and other enterohemorrhagic E. coli (EHEC), in human or animal samples, foods or the environment. The fragments are also useful

New nucleic acid containing sequences specific to enterohemorrhagic Escherichia coli, particularly serotype 0157:H7, used for detecting these bacteria in food

(SNFI) PASTEUR SANOFI DIAGNOSTICS.

99WO-FR01000.

98FR-0005329

28-APR-1998; 27-APR-1999;

Laure FC, Thierry D;

Frechon DTM,

WPI; 2000-013443/01.

1 CTGCAGTCCGGAGATGAAAGCACCACTGTGTGTACCCCATCAGCGTGGTCCCGCAGGCCA TGATTTTTGTCACAGACTCAATGACTACCGGACGCACTGAACCTTCCGGTTGTTTCTCCA Gaps DB 21; Length 1489; ö 0; Indels 100.0%; Score 1489; 100.0%; Pred. No. 0; tive 0; Mismatches Best Local Similarity 100.0%; Matches 1489; Conservative (61 Query Match 셤

Sequence 1489 BP; 386 A; 354 C; 391 G; 358 T; 0 other;

nal samples, foods or the epidemiological studies.

120

9 9

61

ATACCCTTCGTCATCAACACGTACAAACCAGAAGACCAGCTTTTGTTTCTGACATCCAC 360

301

g

ALIGNMENTS

J'un

Thu

```
TGCTGTGGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCC 1020
                                                                                                                                                                                                                                                                                                                                                                                                   TGCTGTGGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCC 1020
                                                                                                                                                                                                                                                                                                                                                                                                                     1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGAAGAIGACTGGGAGCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAG 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATAACCGGGATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGGAATGGGACTTA 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATA 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCAGGGAAGCTTTTTCACGTATGGCCATGGATGAGGAGAGACTGTGGCCCCTGATCGCGG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGGCCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAG 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                        540
                                                                                                         540
                                                                                                                                                                                                   720
                                                                                                                                                                                                          780
                                                                                                                                                                                                                                               840
                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                      CCCCTTAGTATTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCA 480
                                                                                                                            9
                                                                                                                                            9
                                                                                                                                                                      GGCACGGTGCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGC 900
                                                                                                                                                                                                                                                                                                                                             AACGITITGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGAT 960
ATACCCTTCGTCATCAACACGTACAAACCAGAAGACCAGCTTTTTGTTTCTGACATCCAC 360
                                                                                                ATAAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGA
                                                                                                                           TAAAAAAAAACTCTTCCTGTTCTGATTCTTCTGGCGCTATCGGGGGAGCTTTTCTACCGCTG
                                                                                                                                                                                                  CTCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGGTGATTTTGATTATGCCACCA
                                                                                                                                                                                                                                                                                                                    TGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAA
                                                                                                                                                              TAGCCGCTGATAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACTC
                                                                                                                                                                                                                                     GATTTCAACAGCTGGATATGGAGGCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTT
                                                                                                                                                                                                                                                                        AAAGAAGGAATATTCAGGTCTGCGCAGCACTCAACGGCATCGTCAGTTGCGGCTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                    1021
                                                                                                                                                                                                                                                                                                                                                                                                                                      1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1381
                                                   121
                                                                    421
                                                                                      481
                                                                                                       481
                                                                                                                          541
                                                                                                                                            541
                                                                                                                                                             601
                                                                                                                                                                               601
                                                                                                                                                                                                  661
                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                961
                                                                                                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                                                                                                                                                                                                         셤
                               a
                                                                                                   a
                                                                                                                                                                           셤
                                                                                                                                                                                                 ò
                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                         셤
                ð
                                                  ò
                                                                   셤
                                                                                     ò
                                                                                                                         ð
                                                                                                                                           셤
                                                                                                                                                           ò
                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                       å
                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                               $ B
                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
```

```
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTATGGTCATTATGGTCCTTTCTTTATTCGTATGCCTTGGCACGGTGCCGGAACATACAG 862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present sequence is of the Microscilla furvescens catalase-53CAl gene. Fragments of the gene can be used to identify related sequences. Catalase-53CAl may be used to catalyse oxidation reactions such as epoxidation or hydroxylation. The enzyme can also be used to detect or destroy hydrogen peroxide, e.g. in connection with glyoxylic acid production, biosensors, contact lens cleaning, pulp/paper bleaching and pasteurisation of dairy products. Antibodies raised against catalase-53CAl can be used to screen libraries for detection and purification of cells containing the enzyme.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          683 ATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCTCTGAAAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                         paper bleaching;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New bacterial catalases, related nucleic acid vectors and transformed cells - used as oxidising agents and for detecting destroying hydrogen peroxide, e.g. in biosensors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 357.6; DB 19; Length 2238;
Pred. No. 2.7e-105;
0; Mismatches 264; Indels 6;
Sequence 2238 BP; 634 A; 545 C; 605 G; 454 T; 0 other;
                                                                                                                                                                                        Catalase; epoxidation; hydroxylation; biosensor;
                                                                                                                                                                 Microscilla furvescens catalase-53CA1 gene.
                                                                                                                                                                                                                                                                                             "Catalase-53CA1"
                                                                                                                                                                                                                                                                                                                                                                                                                      (RECO-) RECOMBINANT BIOCATALYSIS INC
                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                        BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 3; Fig 2; 35pp; English.
                                                                                      2238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24.0%;
66.7%;
                                                                                                                                                                                                                                                                                                                                                                       97WO-US16513
                                                                                                                                                                                                                                                                                                                                                                                              96US-0674887
                                                                                                                                                                                                                                                                                                                                                                                                                                                Robertson DE,
                                                                                                                                                                                                                                                                                 /_rag= a
/product=
                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                    1..2238
/*tag=
                                                                                                                                                                                                                              Microscilla furvescens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1998-086953/08
                                                                                                                                                                                                       pasteurisation; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 542; Conserv
                                                                                        standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P-PSDB; AAW33810.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Adhikary RS,
                                                                                                                                                                                                                                                                                                                     WO9800526-A1
                                                                                                                                                                                                                                                                                                                                                                     03-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                              03-JUL-1996;
                                                                                                                                        03-JUL-1998
                                                                                                                                                                                                                                                                                                                                            08-JAN-1998
 1441
                        1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            743
                                                                                     AAV06555
                                                                                                               AAV06555;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              803
                                                             RESULT 2
                   셤
                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
```

```
Cockerill FR, Kline
                                                          WPI; 1998-007975/01
                                                                                                                                                                                                                                  Similarity
       18-APR-1994;
                                                                                                                                                                                                                                  Local Simines 502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1165
                                                                                                                                                                                                                                                                                                              236
                                                                                                                                                                                                                                                                                                                                                296
                                                                                                                                                                                                                                                                                                                                                                868
                                                                                                                                                                                                                                                                                                                                                                                                                   416
                                                                                                                                                                                                                                                                                                                                                                                                                                    988
                                                                                                                                                                                                                                                                                             748
                                                                                                                                                                                                                                                                                                                               808
                                                                                                                                                                                                                                                                                                                                                                                 356
                                                                                                                                                                                                                                                                                                                                                                                                  928
                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                  Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
g
                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                         1216
                                                                                                                                                                                                                                                           1336
                                                                                                                                                                                                                                                                                                                               TGTGGAGGAGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATAC 1456
                                                                                   ATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGA 1042
                                                                                                                                                                                                                         AGGCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTC 1276
                                                                                                                                                                                                                                                                                             TAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCCAGGGCCTGATGGTGCACC 1396
                                                                                                                      .043 ATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAGATGACTGGGAGTC--- 1099
                                                                                                                                                                                                                                                                            827
                                                                                                                                                                       647
                                                                                                                                                                                                                                           767
                                                                                                                                                                                                                                                                                                                                               947
                                                            648 CCGAGAGCTCGAAAATCCCCTGGGAGCCGTACAAATGGGACTCATCTATGTAAACCCCGA 707
                                 407
TTACGGTCATTATGGCCCCTTCTTTATACGCATGGCGTGGCACAGCGCCGGCACCTACCG 347
                                                                                                                                                                                                                                   1100 GGACCTGGTATACTGGGGGCCTGACAACACCTCTTGCAGATAACCGGGATAAA---AA
                                                                                                                                                                                                                                                                                                       828 AAAAACCCATGGTGCTGCCGATGCGGAGAAATATGTGGGCCGAGAGCCTGCCGCCGCGGGG
                                                                                                                                                                                                                                                                                                                                               TATTGAAGAATGAGCCTGGGGTGGAAAAACACCTACGGCACCGGACACGGTGCGGATAC
                                                                                                                               1277 ACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGG
                                                                                                                                                                                                                                                                     768 CCGAATGCCAATGAATGACGAAGAAACCGTGGCTCTCATAGCGGGGGGGACACACTTCGG
                 GACATATGATGCCCGGGGGGGCGCCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAG
                          CTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAA
                                                                                                                                                                                         Tuberculosis; katG gene; isoniazid resistance; INH;
isonicotinic acid hydrazide; ss.
                                                                                                                                                                                                                                                                                                                                                                        948 CATCACCAGTGGACTAGAAGGCGCCTGGACCA 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mycobacterium tuberculosis partial katG gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
85..2235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product= "katG
/note= "partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .94US-0228662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tuberculosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             20-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JS5688639-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-NOV-1997
                                                                                                                                                                                                                         1217
                                                                                                                                                                                                                                                                                             1337
                                                                                                                                                                                                                                                                                                                                                                                                                            AAT89967
                                                                                                                                                                                                                                                                                                                               1397
                                                                                                                                                                                                                                                                                                                                                                1457
                                                                                                                                                                                                                                                                                                                                                                                                                                             AAT89967;
                                                   923
                                                                   408
                                                                                                     468
                                                                                                                                                                                         1157
                 863
                                                                                                                                                                                                                                                                                                                                                                                                          AAT89967
ID
                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                         g
                 ð
                                 셤
                                                                   8
                                                                                     õ
                                                                                                     g
                                                                                                                      à
                                                                                                                                     ద
                                                                                                                                                       ò
                                                                                                                                                                      셤
                                                                                                                                                                                         à
                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                 셤
```

```
1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCACTACGGGCCGCTGTTTATCCGGATGGCGTGGCACGCTGCCGGCACCTACCGCATCC 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This partial DNA sequence encodes the katG gene of Mycobacterium tuberculosis strain H37Rv which is used in a novel method to rapidly identify strains of M. tuberculosis which are resistant to isoniazid (INH, isonicotinic acid hydrazide). The method involves the use of restriction fragment length polymorphism (RFLP) analysis to determine if a NoII-MspI restriction site is absent in the DNA of the strain at the codon corresponding to codon 463 of a M. tuberculosis katG gene consensus sequence (see AAW31343). The absence of the site indicates a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                reacecegacarceaegaagreareaccaccreecaecereereececeeceacrace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             536 TGGGCTTCAAGACGTTCGGCTTCGGCCGGGTCGACCAGTGGGAGCCCGATGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TATACTGGGGGCCTGACAACAACCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       596 reratigegecaaggaagecaceregeregegareagegriacagegereagegare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGATGGCCGGGGGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          716 ACGGCAACCCGGACCCCCATGGCCGCGGCGGTCGACATTCGCGAGACGTTTCGGCGCATGG
                                                                                                                                                                                                                                                   Determination of isoniazid sensitivity of Mycobacterium tuberculosis strains – by restriction length polymorphism analysis of katG gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20.0%; Score 298.4; DB 19; Length 2235; 62.4%; Pred. No. 5.5e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2235 BP; 431 A; 696 C; 745 G; 363 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                               Claim 1; Column 9-12; 18pp; English
                                                                                                                         я,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Llarity 62.4%;
Conservative
94US-0228662
                                                                                                                         BC,
                                                       (MAYO-) MAYO FOUNDATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                consensus sequence (se
INH-resistant strain.
```

S

```
ð
                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                       ç
                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                         Q.
                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                         AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
       ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                   ATGCCGCCG---GCCCGGCCGATCTGGTCGGCCCCGAACCCGGAGGCTGCTCCGCTGGAGC 892
                                                                                                                                                                                                                                                                                                                                                                                                                                                            e to T transversion at base 1457 alters codon 463 from CGG (Arg) to CTG (Leu) leading to isoniazid resistance, and eliminates a Ncil-MspI restriction site"
                                                                                                                                                                                                      Isoniazid resistance; restriction fragment length polymorphism; RFLP; katG gene; catalase; peroxidase; multiple drug resistance; isonicotinic acid hydrazide; INH; tuberculosis; antibiotic;
                                                                                                                                                                                                                                                                                                                                                       c "G to C transversion at base 1013 alters codon 315 from AGC (Ser) to ACC (Thr) leading to isoniazid resistance, and produces a new MspI restriction site"
                                                                                                                                                                                                                                                                                                                                                                                                                    alters
                                                                                                                                                                                                                                                                                                            "G to C transversion at base 859 alters
codon 264 from GCG (Ala) to ACG (Thr)
leading to isoniazid resistance, and
eliminates a CfoI restriction site"
                                                                                                                                                                                                                                                                                                                                                                                                                  A to G transversion at base 1079 alter
codon 337 from TAC (Tyr) to TGC (Cys)
leading to isoniazid resistance, and
eliminates a Rsal restriction site"
                                                                                                                                                                                       Mycobacterium tuberculosis wild-type katG gene.
                                                                          GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                   Location/Qualifiers
70..2292
                                                                                    GCGCCATCGAGGTCGTATGGACGA
                                                                                                                                     BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ohl
                                                                                                                                                                                                                                                                                                                                                                                                                   "A to
                                                                                                                                    AAT90400 standard; DNA; 2331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                95US-0418782.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94US-0228662
                                                                                                                                                                                                                                                   Mycobacterium tuberculosis.
                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (MAYO-) MAYO FOUNDATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1457
/*tag=
/note= '
                                                                                                                                                                                                                                                                                    /*tag=
859
                                                                                                                                                                                                                                                                                                      /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                          /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                       /*tag-
/note-
                                                                                                                                                                                                                                                                                                                                                                                                 1079
                                                                                                                                                                                                                                  tuberculostatic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1997-424226/39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cockerill FR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-APR-1995;
                                                                                                                                                                      21-JAN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JS5658733-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-AUG-1997
       1345
                                        1405
                       836
                                                                          1465
                                                                                                                                                     AAT90400;
                                                        893
                                                                                           953
                                                                                                                                                                                                                                                                                             mutation
                                                                                                                                                                                                                                                                                                                                               mutation
                                                                                                                                                                                                                                                                                                                                                                                                 mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                   mutation
                                                                                                                            AAT90400
                                                                                                                     RESULT
                                                        셤
                                                                                         a
                                                                                                                                                     ò
                       9
                                        ò
                                                                          ç
```

```
1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1108 TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1345 ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GIGGAAAACCAGAICCICIGGCITCCGCGAAAGAIAICAGGGAAGCIITITCACGIAIGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1285 CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              236 ACCCGATGGGTGCGGCGTTCGACTATGCCGCGGAGGTCGCGAACCATCGACGTTGACGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    476 CCGACAACGCCAGCTTGGACAAGGCGCGCCGGCTGTGCCCGGTCAAGAAGAAGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGCGTTACAGCGGGTAAGCGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                868 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          776 ACGCCAACCCGGACCCCATGGCCGCGGCGGTCGACATTCGCGAGACGTTTCGGCGCATGG
                                                                                                                                                                                                    This DNA sequence comprises a consensus of the Mycobacterium tuberculosis wild-type katG (catalase-peroxidase) gene. Claimed methods of rapidly identifying strains of M. tuberculosis which are resistant to the tuberculostatic drug isoniazid (INH) are based on the discovery of 4 mutations in the wild-type gene sequence that confer INH resistance and which coincidently result in the addition or deletion of restriction endonuclease sites. Primers (see AAT90401-02) are provided for the PCR amplification of the katG gene of a test strain of M. tuberculosis, and further primers (see AAT90403-06) for uses in the restriction fragment length polymorphism analysis of the amplified gene, and hence for determination the susceptibility to INH of the strain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                susceptibility of Mycobacterium tuberculosis strains to by detecting mutation(s) in the catalase-peroxide gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20.0%; Score 298.4; DB 18; Length 2331; 62.4%; Pred. No. 5.6e-86; Live 0; Mismatches 296; Indels 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 2331 BP; 455 A; 734 C; 763 G; 379 T; 0 other;
                                                                                                                                                      Claim 1; Column 31-36; 38pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
Matches 502; Conserv
P-PSDB; AAW26596.
                                        Determining
                                                                             soniazid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
```

Length 2331;

DB 20;

Query Match

```
The invention realtes to a novel method of detecting Mycobacterium tuberculosis. The method comprises amplifying the DNA in the samples to generate a detectable amount of amplified DNA comprising a catalase-peroxide (katg) DNA fragment with sequence of bases 904-1523 of the M. tuberculosis strain H37RV MC katG gene sequence. The method optionally turber comprises determining if the katG DNA fragment has a serine to threonine mutation in codon 315 (S15T mutation), indicative of an isonicotinic acid hydrazide (INH)-resistant M. tuberculosis strain. The method can be used to detect M. tuberculosis in biological fluids, especially human sputum, useful to diagnose tuberculosis. This disease is a major cause of human morbidity and mortality, and conclusive diagnosis and subsequent trearment depends on identification of the etiologic agent M. tuberculosis. INH has been used in tuberculosis treatment, but INH-resistant strains have emerged; the method allows such drug-resistant strains to be identified. The present sequence represents the wild-type
                                   1464
                                                                 953 AGATGGGCTTGGGCTGGAAGAGCTCGTATGGCACCGGAACCGGTAAGGACGCGATCACCA 1012
896 ATGGCGCCG---GCCCGGCCGATCTGGTCGGCCCCGAACCCGAGGCTGCTCCGCTGGAGC 952
                                   1405 AGCAGGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA
                                                                                                                                                                                                                                                                                                                                                                            Catalase-peroxide; katG; isonicotinic acid hydrazide; tuberculosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Detection of Mycobacterium tuberculosis - by amplifying katG gene and detecting specific fragment, and optionally identifying INH-resistant strains by detecting specific mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product= "catalase peroxide"
/note= "the start codon is not indicated"
                                                                                                                                                                                                                                                                                                                                           M. tuberculosis catalase peroxide (katG) gene sequence
                                                                                                        GIGGCCIGGAAGGAGCCIGGICGA 1488
                                                                                                                             1013 GCGCCATCGAGGTCGTATGGACGA 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
70..2292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tuberculosis katG gene sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ŗ
                                                                                                                                                                                                                                    BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Uhl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 3; Fig 7; 83pp; English.
                                                                                                                                                                                                                                                                                                                                                                                               INH; diagnosis; detection; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= a
/gene= "katG"
                                                                                                                                                                                                                                AAX00817 standard; DNA; 2331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98WO-US09285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   970S-0852219
                                                                                                                                                                                                                                                                                                                                                                                                                                   Mycobacterium tuberculosis.
                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cockerill FR, Kline BC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (MAYO-) MAYO FOUNDATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1999-070099/06.
P-PSDB; AAW95398.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9850585-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 06-MAY-1998;
                                                                                                                                                                                                                                                                                                       26-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12-NOV-1998
                                                                                                        1465
                                                                                                                                                                                                                                                                    AAX00817;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Key
                                                                                                                                                                                                                   AAX0081.
                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                       a
                                   ò
                                                                     셤
                                                                                                        à
                                                                                                                                        셤
```

Sequence 2331 BP; 455 A; 734 C; 763 G; 379 T; 0 other;

```
1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              988 GCTCCAGTATTTCCTGGGGAGACCTGATGCTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     896 Argócicico - - Godocicio de arcadocicio de argócicio 
                                                                                                                       747
                                                                                                                                                            296 reacecessacarceassaagraarsaccaccroscasccrosresrescoccoccacracs 355
                                                                                                                                                                                                                                                                                                                                                               867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       928 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG 987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCATGAACGACGTCGAAACAGCGGCGCTGATCGTCGGCGGCGCTCACTTTCGGTAAGAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGCGTACATTTGGTAAAGCAC
                                                                                                                                                                                                                                                                                                                                                                  GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      868 ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGCGTTACAGCGGTAAGCGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TICAGAAACCICITGCCGCCACGCAGAIGGGACTTAITIAIGICAAICCIGAAGGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tegectrcaagacerrcegerrcegcrrcegcrcegercaacagagegcccgargage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                                                                           TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                   688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mycobacterium tuberculosis; strain H37Rv; strain CDC 1551; genome; variation; epidemiology; patient treatment; epidemic monitoring; ds
                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mycobacterium tuberculosis strain H37Rv genome SEQ ID NO 2.
                                                              Indels
Score 298.4; DB 2
Pred. No. 5.6e-86;
0; Mismatches 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GIGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAI99683 standard; DNA; 4403765
   20.0%;
62.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                 Conservative
                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-JAN-2002
                                                                 502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA199683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1013
                                                                                                                                                                                                                                              748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          836
                                                                                                                                                                                                                                                                                                                                                                  808
                                     Best Local
Matches 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA199683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             M X X B X B X Y X R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          å
                                                                                                                                                                                  셤
                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                             ð
```

```
2152544
                                                                                                                                                                                                                                                                                                                                                                         2152543 ATGGCGCCG---GCCCGGCCGATCTGGTCGGCCCGAACCCGAGGCTGCTCCGCTGGAGC 2152487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention relates to evaluating strain variation within and between different populations of the tuberculosis bacterial pathogen, Mycobacterium tuberculosis or related Mycobacterium by determining the nucleotide sequence of the first strain at positions in the complete sequence of the genome that correspond to positions that differ in the nucleotide sequences of M. tuberculosis strains CDC 1551 (AA199683) and H37Rv (AA199682). The method is useful for evaluating strain variation of M. tuberculosis and has valuable application in the fields of tuberculosis genetics, epidemiology, patient treatment and epidemic
                                                                                       2152663 ACGCAACCCGGACCCCATGCCCGCGCGGCGTCGACATTCGCGGTTTCGCGCGATGG
                                                                                                                                                                                                                                                                     1225 GIGGAAAACCAGAICCICIGGCTICCGCGAAAGAIAICAGGGAAGCITITICACGIAIGG
                                                                                                                                                                                                                                         1345 ATGGTGCAGCGTCTCCTGAAAAAGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                     1405 AGCAGGGACTGGGATGGAAAAATGTGGTACAGGAAACGGCAAATATACCATCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Evaluating strain variation of Mycobacterium tuberculosis, comprises determining the nucleotide sequence of the strain at positions in the genome corresponding to positions where M. tuberculosis strains CDC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mycobacterium tuberculosis; strain H37Rv; strain CDC 1551; genome; variation; epidemiology; patient treatment; epidemic monitoring; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mycobacterium tuberculosis strain H37Rv genome SEQ_ID NO 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 3; SEQ ID NO 1; 3pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Venter JC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2152426 GCGCCATCGAGGTCGTATGGACGA 2152403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1465 GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fraser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAI99682 standard; DNA; 4411529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98US-0103840.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98US-0103840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             White OR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GENO-) INST GENOMIC RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1551 and H37Rv differ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2001-647261/74.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fleischmann RD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US6294328-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24 - JUN - 1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25-SEP-2001.
                                                                1165
                    2152783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA199682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                       셤
                                                                                                                                                    ò
                                                                                                                                                                                           q
                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2153083 GCACTACGGGCCGCTGTTATCCGGAIGGCGTGGCACGCTGCCGGCACCTACCGCATCC 2153024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2153023 ACGACGGCCGCGCGCGCGCGGGGGGGCGCATGCAGCGGTTCGCGCCGCTTAACAGCTGGC 2152964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2152904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACTCGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1108 TATACTGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The invention relates to evaluating strain variation within and between different populations of the tuberculosis bacterial pathogen, why obsercatium by determining the nuclectide sequence of the first strain at positions in the complete sequence of the genome that correspond to positions that differ in the nucleotide sequences of M. tuberculosis strains CDC 155! (AA199683) and H37Rv (AA199682). The method is useful for evaluating strain variation of M. tuberculosis and has valuable application in the fields of the tuberculosis genetics, epidemiology, patient treatment and epidemic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   688 ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 4403765 BP; 757105 A; 1447799 C; 1441301 G; 757371 T; 189 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from USPTO at seqdata.uspto.gov/sequence.html?DocID=6294328B1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2152843 TGGGCTTCAAGACGTTCGGGTTCGGCTTCGGCCGGGTCGACCAGTGGGAGCCCGATGAGG
                                                                                                                                                                                                                                                                                                                                                                     Evaluating strain variation of Mycobacterium tuberculosis, comprises determining the nucleotide sequence of the strain at positions in the genome corresponding to positions where M. tuberculosis strains CDC 1551 and H37Rv differ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20.0%; Score 298.4; DB 22; Length 4403765; larity 62.4%; Pred. No. 6.2e-84; Conservative 0; Mismatches 296; Indels 6; Ga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 4; SEQ ID NO 2; 3pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                  Venter JC;
                                                                                                                                                                                                                                                                                  Ç,
                                                                                                                                                                                                                                                                                  Fraser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>=</u>
=
=
                                                                                                                                                98US-0103840.
                                                                                                                                                                                           98US-0103840.
                                                                                                                                                                                                                                                                                  fleischmann RD, White OR,
                  Mycobacterium tuberculosis
                                                                                                                                                                                                                                       (GENO-) INST GENOMIC RES
                                                                                                                                                                                                                                                                                                                           WPI; 2001-647261/74.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                           US6294328-B1
                                                                                                                                                24-JUN-1998;
                                                                                                                                                                                           24 - JUN-1998;
                                                                                                       25-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loca
Matches
```

9 % 9

8

ò

셤

ò

8

ò

g

9

ö

compared to the

b "G to C variation as (wild-type katG gene"

'note- "the start codon is not indicated"

"catalase peroxide variant"

```
Catalase-peroxide; katG; mutation; isonicotinic acid hydrazide; INH; tuberculosis; diagnosis; detection; variant; ss.
                                 M. tuberculosis catalase peroxide (katG) gene variant
                                                                                                                                   Location/Qualifiers
70..2292
/*tag= a
/product= "catalase p
                                                                                                                                                                                                                                                                                                                98WO-US09285,
                                                                                                                                                                                                                                                                                                                                         97US-0852219.
                                                                                             Mycobacterium tuberculosis Synthetic.
         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                          Cockerill FR, Kline BC,
                                                                                                                                                                                                                                                                                                                                                                  FOUNDATION.
                                                                                                                                                                                                               /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1999-070099/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                 P-PSDB; AAW95399
                                                                                                                                                                                                                                                                                                                                                                  (MAYO-) MAYO
                                                                                                                                                                                                                                                                WO9850585-A1
                                                                                                                                                                                                                                                                                                                06-MAY-1998;
                                                                                                                                                                                                                                                                                                                                          07-MAY-1997;
         29-MAR-1999
                                                                                                                                                                                                                                                                                       12-NOV-1998.
                                                                                                                                                                                                   variation
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2155226 AGATGGGCTTGGGCTGGAAGAGCTCGTATGGCACCGGAACCGGTAAGGACGCGATCACCA 2155167
                                                                                                                                                   2155763 ACGACGCCCCGCGCGCCCGGGCCGCTTCCGCGCCCTTAACAGCTGCC 2155704
                                                                                                                                                                                                                                                                                                                                                                                                           2155643 GCAAGAAGCICICATGGGGGGGACCIGAITTTGGCGGGAACTGCGGCGTGGAATGGA 2155584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2155523 TCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGAGCGTTACAGCGGTAAGCGGGATC 2155464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2155343 CCATGAACGACGTCGAAACAGCGGCGCTGATCGTCGGCGGCGCTTTCGGTAAGACCC 2155284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Argececce --- GCCCGGCCGATCTGGTCGGCCCCGAACCCGAGGCTGCTCCGCTGGAGC 2155227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1225 GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCATGGATGATGAGGAGCTGTGGCCCTGATCGCGGGGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                                                                                                           GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                              1048 TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TICAGAAACCICTIGCCGCCACGCAGAIGGGACTIAITITAIGICAAICCIGAAGGCCCCG 1224
                                                                                                                                                                                                                                        867
                                                                                                                                                                                                                                                                                                                                          987
                                                                                                                                       688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC 747
        Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from USPTO at segdata.uspto.gov/sequence.html?DocID=6294328B1.
                                                            Sequence 4411529 BP; 758565 A; 1449983 C; 1444602 G; 758379 T; 0 other;
                                                                                                                                                                                                     2155463 TGGAGAACCCGCTGGCCGGGGGGAGGGCCGATCTACGTGAACCCGGAGGGGCCGA
                                                                                                                                                                                                                                                                                                                                                         2155403 ACGCAACCCGGACCCCATGCCGCGGTCGACATTCGCGAGACGTTTCGGCGATGG
                                                                                                                                                                                                                                        GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                        ATGATGGCCGGGGGGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                           928 CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                                                                                                                                                                       748 IGAAAAAAGAIAICAAAGAITIGCIGACAACIICCCAGGAIIGGIGCCCIGCGGAIIAIG
                                                                                                             Gaps
                                                                                 Score 298.4; DB 22; Length 4411529;
Pred. No. 6.2e-84;
0; Mismatches 296; Indels. 6; Ga.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAX00818 standard; DNA; 2331
                                                                                  Query Match 20.0%;
Best Local Similarity 62.4%;
Matches 502; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1165
                                                                                                                                                                                                                                          808
                                                                                                                                                                                                                                                                                           868
                                                                                                                                                                                                                                                                                                                                                                                              988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2155283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2155166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 8
AAXOOB18
ID AAXO
XX
AC AAXO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
 õ
                                                                                                                                                                g
                                                                                                                                                                                       δ
                                                                                                                                                                                                                                          ğ
                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                          ŏ
```

JR;

Uhl

```
The invention realtes to a novel method of detecting Mycobacterium tuberculosis. The method comprises amplifying the DNA in the samples to generate a detectable amount of amplified DNA comprising a catalase generate a detectable amount of amplified DNA comprising a catalase peroxide (katG) DNA fragment with sequence of bases 904-1523 of the M. tuberculosis strain H37Rv MC katG Gene sequence. The method optionally further comprises determining if the katG DNA fragment has a serine to threonine mutation in codon 315 (S3157 mutation), indicative of an isonicotinic acid hydrazide (INH)-resistant M. tuberculosis strain. The method can be used to detect M. tuberculosis in biological fluids, method can be used to detect M. tuberculosis. This disease is a major cause of human morbidity and mortality, and conclusive diagnosis and subsequent treatment depends on identification of the etiologic agent M. tuberculosis. INH has been used in tuberculosis treatment, but interesistant strains have emerged; the method allows such drug-resistant strains to be identified. The present sequence represents the M. tuberculosis katG gene variant.

Strains to be identified in the present sequence represents the M. Note: this sequence is not provided in the specification; it has been not be identified the MatG gene sequence given in Fig 7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             236 Accedancerrececentresacrarecesesassicesesacerresacerresacere 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      748 TGAAAAAAGATATCAAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   688 ATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
Detection of Mycobacterium tuberculosis - by amplifying katG gene and detecting specific fragment, and optionally identifying INH-resistant strains by detecting specific mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 20; Length 2331;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19.9%; Score 296.8; DB 20; Length 62.3%; Pred. No. 1.9e-85; ive 0; Mismatches 297; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 2331 BP; 455 A; 735 C; 762 G; 379 T; 0 other;
                                                                                                                                                                                                       Claim 3; Page -; 83pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 19.9
Best Local Similarity 62.3
Matches 501; Conservative
```

AAX00818;

```
GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAA--TGTTGCCCTTGAATC 1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1226 TGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGC 1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAGAACCCGCTGGCCGCGGTGCAGATGGGGCTGATCTACGTGAACCCGGAGGCGCCGAA 713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                resistant to isoniazid (IM, also known as isonicotinic acid hydrazide). The method involves the use of restriction fragment length polymorphism (RFLP) analysis to determine if a NciI-MspI restriction site is absent in the DNA of the strain at the codon corresponding to codon 463 of a M. tuberculosis kat6 gene consensus sequence (see AAW31343). The absence of the site indicates an INH-resistant strain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     748 IGAAAAAAGATATCAAAGATTIGCIGACAACTICCCAGGATIGGIGCCCIGCGGATIAIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCAAGAAGCTCTCATGGGCGGACCTGATTGTTTCGCCGGCAACCGCTGCGCTCGGAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1046 CATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAGAAGATGACTGGGAGTCGGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1106 GGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAAACGGGAAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGACGGTTACAGCGTAAGCGATCT
                                                                                                                                                                                                                                                                                        Determination of isoniazid sensitivity of Mycobacterium tuberculosis strains - by restriction length polymorphism analysis of katG gene
                                                                                                                                                                                                                                                                                                                                                                                                  This partial DNA sequence encodes the katG gene from a variant
strain of Mycobacterium tuberculosis H37Rv which is used in a no
method to rapidly identify strains of M. tuberculosis which are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18.4%; Score 274.2; DB 19; Length 2221; 61.4%; Pred. No. 4.3e-78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2221 BP; 432 A; 691 C; 735 G; 363 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                        Disclosure; Column 12-14; 18pp; English.
                                                                  94US-0228662
                                                                                                              94US-0228662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity 61.4 Matches 493; Conservative
                                                                                                                                                                                                     Kline BC,
                                                                                                                                                          (MAYO-) MAYO FOUNDATION
                                                                                                                                                                                                                                            WPI; 1998-007975/01
                                                                                                                                                                                                     Cockerill FR,
                                                                  18-APR-1994;
                                                                                                              18-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGGCATACATTTGGTAAAGCAC 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGG 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCAGGGACTGGGATGGAAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCA 1464
                                                                                                                                                                                                                                                                                                             GCTCCAGIATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTGAATCCA 1047
                                                                                                                                                                                                                                                                                                                                                                                                  TGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAATGACTGGGAGTCGGACCTGG 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  475
                                                                                                                                                                                                                                                                                                                                 927
                                                                                                                                                                                                                        987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Areacecce---George George Transfer George Ge
  TGACGCGGGACATCGAGGAAGTGATGACCACCTCGCAGCCGTGGTGGCCCGCCGACTACG 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACAACGCCAGCTTGGACAAGGCGCGGCTGCTGTGGCCGGTCAAGAAGAAGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                  596 TGGGCTTCAAGACGTTCGGCTTCGGCTTCGGCTCGACCAGTGGAGCCCGATGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCACTACGGGCCGCTGTTTATCCGGATGGCGTGGCACGCTGCCGGCACCTACCGCATCC
                                                                                                                                ATGATGCCCGGGGAGGCGCCAGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                     CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATA---AAAACGGGAAAC
                                           GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                          ACGACGCCCCCCCCCCCCCGGGGCCGCCATGCCGCGTTCGCCCCCTTAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mycobacterium tuberculosis strain H37Rv variant partial katG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tuberculosis; katG gene; isoniazid resistance; INH isonicotinic acid hydrazide; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1013 CCGCCATCGAGGTCGTATGGACGA 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
1..2217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag= a
/product= "katG g
/note= "partial c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA; 2221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mycobacterium tuberculosis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAT89968 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US5688639-A.
                                                                                                                                                                                                                                                                                                                                                                                               1048
                                                                                                                                                                          416
                                                                                                                                                                                                                                                                                                          886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1465
                                                                                                                                868
                                                                                                                                                                                                                                                            476
                                                                                                                                                                                                                                                                                                                                                    536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAT89968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAT8996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                     a
                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                           ò
                                                                           셤
                                                                                                                              õ
                                                                                                                                                                                                                 ð
```

Gaps

7;

Pred. No. 4.3e-78; 0; Mismatches 303; Indels

novel

Ë Пh 295

867 355

807

415

927

1105

593

535

475

987

1165

1225

773

unique

```
event), both showing homology to the yeast enzyme, fused to a unic
N-terminal sequence of about 50 amino acid residues. Mutations in
the katG gene can result in loss of INH-susceptibility, i.e.
the formation of antibiotic resistant Mycobacterial strains
                                                    Sequence 4795 BP; 892 A; 1532 C; 1559 G; 812 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAX16969 standard; DNA; 4795
                                                                                     Similarity
                                                                                               Matches 493;
                                                                                                                                                                                                                                                                                                                                                                                  1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1466
                                                                                                                                                                                                                                                                        2325
                                                                                                                                                                                                                                                                                                                  2385
                                                                                                                                                                                                                                                                                                                                                            2445
                                                                                                                                                                                                                                                                                                                                                                                                                           1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2920
                                                                                                                                                                                                          808
                                                                                                                                                                                                                                                   868
                                                                                                                                                                                                                                                                                              928
                                                                                                                                                                                                                                                                                                                                         988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAX16969
                                                                           Query Match
                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    取れ出
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ω
  SSSSX8
                                                                                                                                        d
                                                                                                                                                               ŏ
                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                            δý
                                                                                                GCAGGGGACTGGGATAGAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAG 1465
             CATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGAGGCCATACATTTGGTAAAGCACA 1345
                                                                    TGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGA
                                                                                                                     GATGGGCTTGGGCTGGAAGAGCTCGTATGGCACCGGAACCGGTAAGGACGCGATCACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fragment by shotgun cloning. The sequence contains one open reading frame with high coding probability; a 735 amino acid protein is encoded by the ORF having predicted mol.w. 80029. This protein conforms to the structure of known bacterial catalase-peroxidases which consist of two modules (possibly the result of a duplication
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The katG gene of Mycobacterium tuberculosis was isolated on a KpnI
                                                                                                                                                                                                                                                                                                        catalase-peroxidase; isonicotinic acid hydrazide; isoniazid; INH; antiblotic; susceptibility; sensitive; resistant; katG; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              isoniazid, rifampicin or streptomycin resistance in tuberculosis
by detecting mutation in katG, rpoB or rpsL genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rapid detection of antibiotic resistance in Mycobacteria -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Telenti
                                                                                                                                                                                                                                                                                                                                                                                             /product= catalase-peroxidase
                                                                                                                                                                                                                                                                                                                                         Mycobacterium tuberculosis (strain H37Rv).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ž
                                                                                                                                           TGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                       CGCCATCGAGGTCGTATGGACGA 973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Honore
                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
1979..4186
/*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 2; Fig 6A; 97pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     UNIV BERNE.
UNIV CURIE PARIS VI P &
                                                                                                                                                                                                                      BP
                                                                                                                                                                                                                                                                                   M.tuberculosis H37Rv katG gene
                                                                                                                                                                                                                   AAQ51531 standard; DNA; 4795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          920S-0875940.
920S-0929206.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INST PASTEUR.
MEDICAL RES COUNCIL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Heym B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (ASSI-) ASSISTANCE PUBLIQUE.
(INSP ) INST PASTEUR.
(MEDI-) MEDICAL RES COUNCIL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92FR-0011098
                                                                                                                                                                                                                                                                                                                                                                                                                                                            93WO-EP01063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93FR-0004545
                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cole S,
Zhang Y;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1993-368812/46.
P-PSDB; AAR43670.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-APR-1992;
14-AUG-1992;
16-APR-1993;
                                                                                                                                                                                                                                                               17-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                           30-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                   WO9322454-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-SEP-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                      11-NOV-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ė
                                                      1346
                                                                                                1406
                                 774
                                                                           834
                                                                                                                                           1466
                                                                                                                                                               951
                                                                                                                                                                                                                                          AAQ51531;
             1286
                                                                                                                      891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (O guno)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (UYPA-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      UYBE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bodmer
                                                                                                                                                                                                             AAQ5153
                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                               ò
                                                                                                                     셤
                                                                                                                                                               셤
             ò
                                 셤
                                                      à
                                                                          셤
                                                                                                                                            à
```

```
1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2860 GATGGGCTTGGGCTGGAAGAGCTCGTATGGCACCGGAACCGGTAAGGACGCGATCACCAG 2919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2803 rececce---ecceseccarcresressecceaacceaacceaaccececerecaaca 2859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2504
                                                          3;
                                                                                                                                                                                                                                                                                                                                                                                                                              2384
                                                                                                                            987
                                                                                                   747
                                                                                                                                                                                                                                                                                                                2505 GAIGGGCTICAAGACGTICGGGTICGGCTICGG-GCGTCGACCAGIGGGAGACCGAIGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATGGATGATGAGGAGACTGTGCCCCTGATCGCGGGGGGGCATACATTTGGTAAAGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2205 TGACGCGGGACATCGAGGAAGTGATGACCACCTCGCAGCCGTGGTGGCCCGCCGCCGACTACG
                                                                                                                                                                                                                                                                                                                                                                                                          GCICCAGIAITICCIGGGGAGACCIGAIGGICCIGACIGGIAA - - TGIIGCCCIIGAAIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAAACGGGATAAAAACGGGAAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1226 TGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTTCACGTATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1346 IGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAG
                                                                                                      688 ATCCCTGGGGGCCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC
                                                                                                                                                                                                748 TGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATACG
                                                                                                                                                                                                                                                                                          GICATIAIGGICCITICITIAITCGIAIGGCIIGGCACGGIGCCGGAACAIACAGGACAI
                                                                                                                                                                                                                                                                                                                                                                                    ATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                          Gaps
18.4%; Score 274.2; DB 14; Length 4795; nilarity 61.4%; Pred. No. 6.9e-78; Conservative 0; Mismatches 303; Indels 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCATCGAGGTCGTATGGACGA 2942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BP.
```

```
2742
                                                                                                                                                                                                                                                                                                    1345
                                                                                                                                                                                        2803 TGGCGCCG---GCCCGGCCGATCTGGTCGCCCCCGAACCCGAGGCTGCTCCGCTGGAGCA 2859
                                             CATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAGATGATGACTGGGAGTCGGACCT
                                                                           2505 GATGGGCTTCAAGACGTTCGGGTTCGG--GCGTCGACCAGTGGGAGACCGATGA
                                                                                                                                                                        1286 CATGGATGATGAGGAGACTGTGGCCCTGATCGCGGGGGGGCCATACATTGGTAAAGCACA
                                                                                                                                                                                                                                                                                                                                                                 1346 TGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCACCTGTGGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                             GCAGGGACTGGGATGGAAAATAAATGTGGTACAGGAAACGGCAAATATACCATCACCAG
                                                                                                                                         2563 GGTCTATTGGGGCAAGGAAGCCACCTGGCTCGGCGATGACGGTTACAGCGTAAGCGATCT
                                                                                                          GGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATAACCGGGATAAAACGGGAAACT
                                                                                                                                                                                                                                    1226 TGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAGCTTTTCACGTATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA contg. genetic information of heat resistant peroxidase prepd. by culturing transformant and collecting heat resistant peroxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence encoding heat resistant peroxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1466 TGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2920 CGCCATCGAGGTCGTATGGACGA 2942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
1..2193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Fig 2; 8pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAQ06815 standard; DNA; 2196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacillus stearothermophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       89JP-0089469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   89JP-0089469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             poD10; E.coli UM228; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1990-372008/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TOYM ) TOYOBO KK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P-PSDB; AAR08205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JP02268684-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-APR-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J7-APR-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-MAR-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02-NOV-1990
                                                                                                          1106
                                                                                                                                                                        1166
                                                                                                                                                                                                                                                                                                                                                                                                                             1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAQ06815;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                       g
                                                                                                        ò
                                                                                                                                       셤
                                                                                                                                                                        ò
                                                                                                                                                                                                q
                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            988 GCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAA - TGTTGCCCTTGAATC 1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       688 ATCCCTGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGGAGGCTC 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene, which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATACAGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 748 TGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCCTGCGGATTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGATGGCCGGGGAGGCGCCAGTGGTCAGCAACGTTTTGAACCGCTGAACAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This sequence represents the Mycobacterium tuberculosis katG gene, whencodes a catalase-peroxidase enzyme isolated from a M. tuberculosis strain resistant to isonicotinic acid hydrazide (isoniazid or INH). The sequence is useful in the diagnosis of tuberculosis caused by INH-resistant M. tuberculosis and in the identification of other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New nucleic acid encoding catalase-peroxidase HPI - useful for rapid identification of isoniazid resistant Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                           isonicotinic acid hydrazide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 4795;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           303; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 4795 BP; 892 A; 1532 C; 1559 G; 812 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 20;
                                                                                                                                                   Location/Qualifiers
1979. 4186
//tag- a //stag- a //gene- "atg"
/product- "catalase-peroxidase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 274.2; DB 20
Pred. No. 6.9e-78;
0; Mismatches 303;
                                                                       peroxidase; enzyme; isoni
diagnosis; resistance; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zhang Y;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Fig 10A; 46pp; English.
                                                                                                                                                                                                                                                                                                                                           95US-0459499.
92US-0875940.
92US-0929206.
93US-0029655.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cole ST, Heym B, Young DB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tch 18.4%;
al Similarity 61.4%;
493; Conservative
                                                                                                                                                                                                                                                                                                                95US-0459499
                                                                                                                        Mycobacterium tuberculosis,
              (first entry)
                                            M.tuberculosis katG gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INH-resistant strains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                          PASTEUR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1999-166622/14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       P-PSDB; AAW78363
                                                                           ratG; catalase;
lsoniazid; INH;
                                                                                                                                                                                                                                                                                                                                                                                                                            ISNI ( dSNI)
             11-MAY-1999
                                                                                                                                                                                                                                                                                                                12-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                            11-MAR-1993;
                                                                                                                                                                                                                                                 US5871912-A
                                                                                                                                                                                                                                                                                                                                               12-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                             30-APR-1992
                                                                                                                                                                                                                                                                                 16-FEB-1999
                                                                                                                                                                                                                                                                                                                                                                              14-AUG-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
```

a

õ

9 6

ò

셤

9 g

ò

BP.

```
AAV06554 standard; DNA; 2262
                    AAV06554;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                    GTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAAG 1086
                                                                                                                                                                                                                                                                                                                                                                                                                             ATGACTGGGAGTCG---GACCTGGTATACTGGGGGCCTGACAACAACCTCTTGCAGATA 1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŝ
                                                                                                                                                                                                                                                                                                                                              GGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTG 1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1144 ACCGGGATAAAAACG--GGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTAT 1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1322 AGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGG 1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       968
                                                                                                                                                                                                                       846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 423
                                                                                                                                                                                                                                                                                                                                                                                                         543
                                                                                                                                                                                                                                                                                                        996
                                                                                                                                                                                                                                                                                                                                                                  483
                                                                                                               726
                                                                                                                                                              184
                                                                                                                                                                                AACAGCTGGATATGGAGGCTCTGAAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGG 786
                                                                                                                                                                                                                                  ACTGGTGGCCGGCCGATTATGGCCATTACGGCCCTTGTTTATCCGCATGGCCTGGCATT 304
                                                                                                                                                                                                                                                                906
                                                                                                                                                                                                                                                                                   364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       780 CGGTCATACGTTCGGAAAAAGCGCACCGCGGCG---GCCCTGCCACGCACGTCGGTCCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1202 TTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACGCTATTCCGGTGATCGCGACCTCGAAAACCCGCTCGCCGCGTGCAAATGGGGGTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGGG
                                                                                                  CTGATAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACTCCTCTGA
                                                                                                                                          GATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTC
                                                                                                                                                              ATCAACATGACCGAAAAACGAATCCTCATGATGAAGAGTTCAACTATGCTGAGGAGTTTC
                                                                                                                                                                                              GTGCCGGAACATACAGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTT
                                                                                                                                                                                                                                                                            CAGCTGGCACGTACCGCATCGCCGACGGCGGCGGCGCGCTTCGACCGGCACGCGCT
                                                                                                                                                                                                                                                                                                        TTGAACCGCTGAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGT
                                                                                                                                                                                                                                                                                                                                                          ACGICTGGCATCCGGAAGAGACGITTATTGGGGATCGGAAAAAGAGTGGCTCGCCTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                664 CTACGTCAACCCAGAAGGGCCGGACGGCAAGCCGGATCCAAAAGCAGGGGGATATC---
                                                                                Gaps
                                                                               13;
be may be used to construct plasmid poD10 used to transforous The transformed expression system may be used to
                                                           DB 11; Length 2196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1442 AAACGGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGAC 1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 250.4; DB 11; Length
Pred. No. 2.5e-70;
0; Mismatches 351; Indels
                                       Sequence 2196 BP; 576 A; 564 C; 633 G; 423 T; 0 other;
                     produce heat resistant peroxidase in large quantities.
                                                           16.8%;
59.0%;
                                                                              Matches 524; Conservative
                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                             1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1382
                                                                                                                                                                                                                        787
                                                                                                                                                                                                                                            245
                                                                                                                                                                                                                                                                 847
                                                                                                                                                                                                                                                                                    305
                                                                                                                                                                                                                                                                                                                                                                  424
                                                                                                                                                                                                                                                                                                                                                                                       1027
                                                                                                                                                                                                                                                                                                                                                                                                         484
                                                                                                                                                                                                                                                                                                                                                                                                                                                 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              897
                                                                                                  607
                                                                                                                     9
                                                                                                                                                              125
                                                                                                                                                                                 727
                                                                                                                                                                                                     185
                                                                                                                                                                                                                                                                                                                           365
                                                                                                                                                                                                                                                                                                                                              196
                                                           Query Match
Best Local S
                                                                                                                                          299
                                                                                                                                                                                                                                                                                                       907
          E.col1
 ឧទ្ធម្ភន
                                                                                                   ð
                                                                                                                     a
                                                                                                                                          ò
                                                                                                                                                            셤
                                                                                                                                                                                  δ
                                                                                                                                                                                                   g
                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
```

```
ACTGGGGGCACTACGGCGTTTGATGATCCGTATGGCTTGGCACTCCGCTGGCACCTACC 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTATTGCTGATGCCCGTGGGGGGGGGGTACCGGAAGCCAGCGCTTTGCACCGCTCAACT 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAAA 981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present sequence is of the Alcaligenes aquamarinus catalase-64CA2 gene. Fragments of the gene can be used to identify related sequences. Catalase-64CA2 may be used to catalyse oxidation reactions such as epoxidation or hydroxylation. The enzyme can also be used to detect or destroy hydrogen peroxide, e.g. in connection with glyoxylic acid production, blosensors, contact lens cleaning, pulp/paper bleaching and pasteurisation of dairy products. Antibodies raised against catalase-64CA2 can be used to screen libraries for detection and purification of cells containing the enzyme.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTATGGTCATTATGGTCCTTTCTTATTCGTATGGCTTGGCACGGTGCCGGAACATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         742 AGGCTCTGAAAAAGATATCAAAGATTTGCTGACAACTTCCCAGGATTGGTGCCTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   682 AATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAGATTTCAACAGCTGGATATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218 AATCAGACCCGATGGATCCGGATTTCAACTACCGTGAAGAAGTACGCAAGCTCGATTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   or
                                                                                                                epoxidation; hydroxylation; biosensor; paper bleaching;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15.1%; Score 224.6; DB 19; Length 2262; 57.4%; Pred. No. 6.5e-62; tive 0; Mismatches 329; Indels 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New bacterial catalases, related nucleic acid vectors and transformed cells - used as oxidising agents and for detecting destroying hydrogen peroxide, e.g. in biosensors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2262 BP; 553 A; 612 C; 663 G; 434 T; 0 other;
                                                        Alcaligenes (Deleya) aquamarinus catalase-64CA2 gene
                                                                                                                                                                                                                                                                                                                                                             "Catalase-64CA2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (RECO-) RECOMBINANT BIOCATALYSIS INC
                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 3; Fig 1; 35pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97WO-US16513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Robertson DE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96US-0674887
                                                                                                                                                                                                                                                                                                                              /*tag= a
/product= '
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity 57.4 ses 476; Conservative
                                                                                                                                                                                                             Alcaligenes aquamarinus.
                                                                                                                                                                                                                                                                                                  . 2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 1998-086953/08.
P-PSDB; AAW33809.
                                                                                                                                                  pasteurisation; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Adhikary RS,
                                                                                                                                                                                                                                                                                                                                                                                                                        WO9800526-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-JUL-1996;
03-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                08-JAN-1998
                                                                                                                      Catalase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

801 337 861 921

13 RESULT 13 AAV06554

```
WPI; 2000-431611/37.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13-MAR-2001
                                                                                                                                                                                                                                                                                                                                   98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAF07490;
                                                                                                                                                                                                                                                                                                                                                                                                      206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                  쉽
                                                                                                                                                                                                                                                                                                                                                   å
                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                 ACCTGG---TATACTGGGGGCCTGACAACAAGCCTCTTGCAGAT-------1142
                                                                                                                                                                                                                       GAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAG 1380
                                                                                                                                                                                                                                                        AATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAGAAGATGACTGGGAGTCGG 1101
                                                                                                                                                     TTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATA 1260
                                                                                                                                                                                               GCGACGTGAACAAGCCAGAGACCATGGAAAACCCGCTGGCGGCTGTCCAAATGGGTCTGA 757
CCTGGCCGGACAACGTCAGCCTGGATAAAGCGCGCCGTCTGCTGTGGCCGATCAAGAAGA 517
                                                                                                                                                              982 AATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGCCCTTG
                           --AACCGGGATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTA
                                                                                                                                                                                      TCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCGG
                                                                578 AGTCCATGGGCTTACCTGCTTACGGCTTCTTTCGGCCGCCGTCGATATTTGGGAACCCG
                                                                                                  935 ACCCAAAAGCCTCTGACGTTGAAAACCAGGGCTTAGGTTGGGGCAACCCCAACATGCAGG
                                                                                                                                                                                                                                                                                         GAAACGCCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGAC 1489
                                                                                                                                                                                                                                                                                                        995 GCAAGCAACCACCCGTGACCTCGGGTATCGAAGGTGCTTGGACCAC 1043
                                                                                                                                                                                                                                                                                                                                                                                                     Mycobacterium tuberculosis katG gene (isoniazid resistance)
                                                                                                                                                                                                                                                                                                                                                                                                                     Antibiotic resistance; katG gene; isoniazid resistance;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag= a
/note= "primer of AAA49827"
231..250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note- "primer of AAA49828"
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(41..60)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (VISI-) VISIBLE GENETICS INC
                                                                                                                                                                                                                                                                                                                                                  AAA49864 standard; DNA; 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99WO-CA01177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98US-0111794
                                                                                                                                                                                                                                                                                                                                                                                                                                      Mycobacterium tuberculosis.
                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200036142-A1
                                                                                                                                                                                                                                                                                                                                                                                    25-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Shipman R;
                                                 1042
                                                                                                                                                    1201
                                                                                                                                                                    758
                                                                                                                                                                                     1261
                                                                                                                                                                                                                                                                                                                                                                   AAA49864;
                                                                                  1102
                                                                                                                   1143
                                                                                                                                                                                                                       1321
                                                                                                                                                                                                                                                        1381
                                                                                                                                                                                                                                       878
                                                                                                                                                                                                                                                                                                                                  RESULT 14
AAA49864
                                                                                                                                                                g
                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                           à
                                                                g
                                                                                ò
                                                                                               셤
                                                                                                                  ò
                                                                                                                                g
                                                                                                                                                 à
                                                                                                                                                                                    à
                                                                                                                                                                                                 g
                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                        ò
```

```
1274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1155 AACGGGAAACTICAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTTATGTCAATCCT 1214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The present sequence is that of the Mycobacterium tuberculosis katG (isoniazid resistance) gene (bp661-1320). Amplification and cycle sequencing primers (see AAA4683-65) are used for the detection and analysis of antiblotic resistance-associated mutations in defined regions of rpoB (rifampin), katG (isoniazid), oxyR-aphC PR (isoniazid), mabA (isoniazid), proA (pyrazinamide), gyrA (streptomycin), embB (ethambutol), pncA (pyrazinamide), gyrA (ciprofiloxacin) and 233 (azithromycin) genes of M. tuberculosis. These primers can be used in a method for the detection and characterization of M. tuberculosis present in a sputum sample. The method involves performing a sequencing procedure, with or without prior amplification, to detect the presence of M. tuberculosis, and if present to evaluate the rpoB katG, rpsL/s12 and 235 genes for the presence of antibiotic inducing mutations. If M. tuberculosis is detected, a second sequencing procedure is performed on the sample to evaluate additional genes for the presence of antibiotic resistance-inducing mutations. Genotypic tests are rapid, sensitive and accurate providing information as to antibiotic treatment options.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1335 GGTAAAGCACATGGTGCAGCGTCTCCTGAAAATGTATTGGCGCAGGGCCTGATGGTGCA 1394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1395 CCTGTGGAGGAGCAGGGACTGGGAAAAAAAAATGTGGGTACAGGAAACGGCAAATAT 1454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTAAGACCCATGGCGCCG---GCCCGGCCGATCTGGTCGGCCCGAACCCGAGGCTGCT 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Multiple gene expression; filamentoùs fungal cell; EST; expressed sequence tag; Fusarium venenatum; Aspergillus niger; Aspergillus oryzae; Trichoderma reesel; identification; recombination; culture condition; environmental stress; spore morphogenesis; metabolic pathway engineering; catabolic pathway engineering; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1215 GAAGGCCCCGGTGGAAAACCAGATCCTCGGCTTCCGCGAAAGATATCAGGGAAGCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          146 CGGCGCATGGCCATGAACGACGTCGAAACAGCGGCGCTGATCGTCGCGGCGCTCACATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26 AAGCGGGATCTGGAGAACCCGCTGGCCGCGGTGCAGATCGGGCTGATCTACGTGAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        263 CCGCTGGAGCAGATGGGCTTGGGCTGGAAGAGCTCGTATGGCACCGGAACCGGTAAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3;
Method for the detection and characterization of Mycobacterium tuberculosis with antibiotic resistance in a sample -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 21; Length 660;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 660 BP; 127 A; 206 C; 227 G; 100 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 122.8; DB 21;
Pred. No. 4.9e-29;
0; Mismatches 122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1455 ACCATCACCAGTGGCCTGGAAGGAGCCTGGTCGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             323 GCGATCACCAGCGGCATCGAGGTCGTATGGACGA 356
                                                                                                        Disclosure; Page 5-6; 43pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fusarium venenatum EST SEQ ID NO:13.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAF07490 standard; cDNA; 1852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 62.6
Matches 209; Conservative
```

383 CCGCCCACCTTGCCCAGCAGGGTCTCGGCTGGTCCAACAGCTACAAGACGGAAAGGGTCC 442

1450 AATATACCATCACCAG 443 GACACAACCACATCTG BP.

(first entry)

```
Determining the degree of cytosine methylation in genomic DNA, useful for diagnosis and prognosis, comprises selective hybridization of amplicons from chemically treated DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human; cytosine methylation; 5'-CpG-3'; uracil; cytosine; diagnosis; drug; side effect; cancer; central nervous system; cardiovascular; gastrointestinal; respiratory system; single nucleotide polymorphism; SNP; cell differentiation; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                          Oligonucleotide for detecting cytosine methylation SEQ ID NO 9825.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 12; 56pp + Sequence Listing; 56pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-SEP-2001; 2001WO-EP10074.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-SEP-2000; 2000DE-1043826.
05-SEP-2000; 2000DE-1044543.
                                                                                                                                                                                                                                                    ABQ23234 standard; DNA; 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Olek A, Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (EPIG-) EPIGENOMICS AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2002-371829/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200218632-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 05-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                  12-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       07-MAR-2002.
                                                                                                                                                                                                                                                                                                               ABQ23234;
                                                                                                                                                                                               RESULT 16
                                                                                                                                                                                                                             ABQ2323
                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                             셤
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present invention describes a method for monitoring differential expression of genes in a first filamentous fungal (FF) cell relative to expression of the same genes in one or more second filamentous fungal cells. The method uses fluorescence-labeled nucleic acids isolated from the Fr cells and a substrate of expressed sequence tags (EST). The ESTs are used in the methods for monitoring differential expression of genes in a first filamentous fungal (FF) cell relative to expression of the same genes in one or more second filamentous fungal cells. Monitoring the global expression of genes from FF cells allows the production potential of the microorganisms to be improved. New genes may be discovered, possible functions of unknown open reading frames can be discovered, the expression of genes can be used to study how FF cells adapt to changes in culture conditions, environmental stress, spore morphogenesis, recombination, metabolic or catabolic pathway morphogenesis, recombination, metabolic or catabolic pathway morphogenesis, recombination, metabolic or catabolic pathway candom cDNA clones including elimination of redundancy as one spot on an endineering using ESTS provides several advantages over genomic or random cDNA clones including elimination of redundancy as one spot on microarrays based on function of the gene products to facilitate analysis of the results. AAF07478 to AAF11247 represents ESTS from Figure 1000 and 1000 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1150 ATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTATGTCA 1209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1210 ATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCAGGGAAG 1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1270 CTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGGCCCTGATCGCGGGAGGGCATA 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1330 CATTIGGTAAAGCACAIGGIGCAGCGICICCIGAAAAAIGIATIGGCGCAGGGCCIGAIG 1389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                146 ATCACAACCGAGATCTCGAGAAGCCTTTGGCTGCTCACCACGGTCTCATCTATGTTA 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      266 CCTTCGGCCGCATGACGACGACGAAAAAAAGACCGTTGCTCTGATTGCTGGTGGTGGTGACAAA 325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          326 CCGTCGGCAAGACCCACGGAGCTGGCTCAACCGACCA---CGTCGGCCCCGAGCCCGAAG 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     niger; AAF11854 to AAF14878 represents ESTs from Aspergillus oryzae; and AAF14879 to AAF15337 represents ESTs from Trichoderma reesei, which are all specifically claimed in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Monitoring differential expression of genes in filamentous fungal cells uses fluorescence-labeled nucleic acids isolated from the cells and a substrate of expressed sequence tags -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           206 ACCCTGAGGGTCCTGATGGTAACCCCGACCCGGTGCTGCCGTGACATCCGCGAGA
                                                                                                                                                                                                                                                                                                                                                                                               Olsen PB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 21; Length 1852;
                                                                                                                                                                                                                                                                                                                                                                                               Clausen IG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1852 BP; 417 A; 564 C; 473 G; 394 T; 4 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _
_
_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 95.2; DB 21;
Pred. No. 9.4e-20;
0; Mismatches 128;
                                                                                                                                                                                                                                                                                                                                                                                               Berka RM, Rey MW, Shuster JR, Kauppinen S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                = = = = =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 86; Page 367-368; 3161pp; English.
                                                                                                                                                                                                                                                                                                       NOVO ) NOVO NORDISK BIOTECH INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.4%;
                                                                                                                                                                                            22-MAR-2000; 2000WO-US07781.
                                                                                                                                                                                                                                                       99US-0273623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 185; Conservative
                                                                                                                                                                                                                                                                                                                                       (NOVO ) NOVO NORDISK AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2000-594572/56.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                             Fusarium venenatum.
                                                                                  WO200056762-A2.
                                                                                                                                                                                                                                                    22-MAR-1999;
                                                                                                                                       28-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
```

Berlin K, Guetig D;

```
This invention describes a novel method for determining the degree of methylation of a particular cytosine in a motif 5'-CpG-3', present in a genomic sample of DNA. The sample is treated chemically to convert cytosine (C) but not methylated C, to uracil, then part of the genomic convent cample is the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one member, of oligonucleotides and/or peptide-nucleic acid (PNA) oligomers and the degree of hybridisation to both classes is determined from the label on the amplicon. From the ratio of labels hybridised to the two classes of oligomers, the degree of methylation is calculated. The method is used: (1) for diagnosis and/or prognosis of side effects of the central nervous, cardiovascular, gastrointestinal and respiratory systems etc., particularly by detecting mutations or single nucleotide cypes and for investigating cell differentiation. The method allows the methylation status of many C residues to be determined simultaneously.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABQ13410-ABQ54121 represent genomic DNA sequences used to illustrate the method for determining the degree of cytosine methylation described in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6.1%; Score 91.4; DB 24; Length 538; larity 51.4%; Pred. No. 7.5e-19; Conservative 0; Mismatches 221; Indels 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 538 BP; 119 A; 47 C; 166 G; 206 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the disclosure of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
nes 237; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loca
Matches
```

a

ð

g

ö

g

ŏ

g

à

ò

1024 CTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAG 1083

```
AAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATA 1143
                                                                                                                                                                         ATGTCAATCCTGAAGGCCCCGGTGGAAACCAGATCCTCTGGCTTCCGCGAAAGATATCA 1263
                                                                                                                                                                                                                                      GGGAAGCTTTTTCACGTATGCCCATGGATGATGAGGAGACTGTGCCCCTGATCGCGGGAG 1323
                                                                                                                                                                                                                                                                                                   GGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGC 1383
                                                                                                                                          145 ATCGTTATTCGGAAGCGTTGGCGAAAGTATCGTTGGGTGTAATCGAGATGGGTTTGATTT 204
                                                                                                                                                                                                       ACGTTAATTCGGAAGGTTCGGATTATAGCGGCGAATCGTTTTTTGCGGTAGTAGTTATTC 264
                                                                                                                                                                                                                                                          382 TAGAAGTTGTATCGATTGAAGAATAAGGTTTAGGTTGGGCGAGTATTTACGGTAGCGGCG 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of
in
                AAGACGTTTGGGAATCGGATTTGGATGTTAATTGGGGTGATGAAAAAGTTTGGTTGATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       useful
of
                                                                                                            ACCGGGATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTT
                                                                                                                                                                                                                                                                                                                                 325 GTTATACGTTGGGTAAAATTTACGGTGTCGGTTCGATATTAAA---TGTAGGTTTTGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human; cytosine methylation; 5'-CpG-3'; uracil; cytosine; diagnosis; drug; side effect; cancer; central nervous system; cardiovascular; gastrointestinal; respiratory system; single nucleotide polymorphism; SNP; cell differentiation; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This invention describes a novel method for determining the degree methylation of a particular cytosine in a motif 5'-CpG-3', present genomic sample of DNA. The sample is treated chemically to convert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oligonucleotide for detecting cytosine methylation SEQ ID NO 9826.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      diagnosis and proposes of cytosine methylation in genomic DNA, diagnosis and proposes. Comprises selective hybridization
                                                                                                                                                                                                                                                                                                                                                                                                                               1444 ACGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGG 1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                           442 TIGGCGIAGAIGTIATITATITITIGGITITGGAAGTAGTIGG 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Determining the degree of cytosine methylation in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 12; 56pp + Sequence Listing; 56pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Guetig
amplicons from chemically treated DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Berlin K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-SEP-2001; 2001WO-EP10074.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000DE-1043826.
2000DE-1044543.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABQ23235 standard; DNA; 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Olek A, Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (EPIG-) EPIGENOMICS AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2002-371829/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200218632-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-SEP-2000;
05-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              07-MAR-2002.
                                                                                                                                                                                                       205
                52
                                                                             82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AB023235;
                                                                                                                                                                                                                                                                                                  1324
                                                                                                                                                                                                                                                                                                                                                                1384
                                                                                                            1144
                                                                                                                                                                        1204
                                                                                                                                                                                                                                      1264
                                                                                                                                                                                                                                                                    265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABQ23235,
                                                                                                                                                                                                    용
                                                                                                                                                                                                                                                                  윱
                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                               윱
                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                           ò
                                                                                                                                        셤
                                                                                                                                                                        ò
                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                à
```

```
cytosine (C) but not methylated C, to uracil, then part of the genomic DNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one member, of oligonucleotides and/or peptide-nucleic acid (PNA) oligomers and the degree of hybridisation to both classes is determined from the label on the amplicon. From the ratio of labels hybridised to the two classes of oligomers, the degree of methylation is calculated. The method is used: (i) for diagnosis and/or prognosis of side effects of the repetute drugs and of a wide range of diseases, e.g. cancer, disorders of the central nervous, cardiovascular, gastrointestinal and respiratory systems etc., particularly by detecting mutations or single nucleotide types and for investigating cell differentiation. The method allows the methylation status of many C residues to be determined simultaneously.

CC methylation status of many C residues to be determined simultaneously.

CC methylation described in the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1324 GGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGC 1383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 514 CGGGTAACGTGGCGTTAGAAATTTCGGTTTTCGTATTTTCGGTTTTTGGTGTCGTCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1084 AAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCTGACAACAAGCCTCTTGCAGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCGAAAGATATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCCTGATCGCGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   214 GITATACGTTGGGTAAAATTTACGGTGTCGGTTCGATATTAAA---TGTAGGTTTTGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             157 IAGAAGTTGTATCGATTGAAGAATAAGGTTTAGGTTGGGCGAGTATTTACGGTAGCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          454 AAGACGTTTGGGAATCGGATTTTGGATGTTAATTGGGGTGATGAAAAGTTTGGTTGATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1144 ACCGGGATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATGGGACTTATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tubercle bacillus; drug sensitivity; drug resistance; rifampicin; streptomycin; kanamycin; isoniazid; ethambutol; rpoB gene; rrs gene; rpsL gene; inhA gene; katG gene; embB gene; probe; PCR primer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                             3,
                                                                                                                                                                                                                                                                                                                                                                        Length 538;
                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    57
                                                                                                                                                                                                                                                                                                                                    Sequence 538 BP; 206 A; 166 C; 47 G; 119 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1444 ACGCAAATATACCATCACCAGTGGCCTGGAAGGAGCCTGG
                                                                                                                                                                                                                                                                                                                                                                          DB 24;
                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches 221;
                                                                                                                                                                                                                                                                                                                                                                       Score 91.4; DB 24
Pred. No. 7.5e-19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BP
                                                                                                                                                                                                                                                                                                                                                                       6.1%;
ilarity 51.4%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAF95160 standard; DNA; 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            katG gene probe #2.
                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                         fatches 237;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAF95160;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1204
                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAF95160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   888888888888888888888888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              줨
                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
```

99JP-0220357

```
02-AUG-2000; 2000EP-0306563.
                                                                                                                          (NISN ) NISSHINBO IND INC.
                                                                                               03-AUG-1999;
                                          14-FEB-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAF95159
  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                    The present invention relates to oligonucleotides based on nucleotide sequences obtained from both wild-type tubercle bacilli (wtrB) that are susceptible to a drug and mutant-type tubercle bacilli (wtrB) that are resistant to a drug, The drugs used in the present invention are rifampicin (RFP), streptomycin (SM), kanamycin (KM), isoniazid (INH) and ethambutoi (RFP), the present invention are seponsible for resistance to RFP; the rrs gene is responsible for resistance to RFP; the responsible for resistance to SM; the inhA gene is responsible for resistance to INH; and the embB gene is responsible for resistance to INH; and the embB gene is responsible for resistance to INH; in the RFP of the present invention also relates to nucleic acid probes having part of a nucleotide sequence of tubercle bacilli (FB) responsible for drug resistance and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       852 GGAACATACAGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAA 911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      912 CCGCIGAACAGCIGGCCGGAIAACGIIAAICIGGAIAAAGCCCGTCGAIIGCIGIGGCCA 971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New oligonucleotides, nucleic acid probes and primers are useful for differentiating drug-resistance and determining infection with tubercle
                                                                                                                                                                                                                                                                                                                                                                                                                                                   primers used to generate the probes. The present sequence is an oligonucleotide of the present invention. The oligonucleotides of the present invention can be used to enable the differentiation of drug resistance and the determination of infection with tubercle bacilli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tubercle bacillus; drug sensitivity; drug resistance; rifampicin; streptomycin; kanamycin; isoniazid; ethambutol; rpoB gene; rrs gene; rpsL gene; lnhA gene; katG gene; embB gene; probe; PCR primer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 75.6; DB 22;
Pred. No. 4.9e-14;
0; Mismatches 39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 150 BP; 29 A; 51 C; 53 G; 17 T; 0 other;
                                                                                                                                                                                                                                                          Disclosure; Page 61-62; 114pp; English.
                                                                                                                                                  Takenishi S;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            972 GTCAAGAAAAATACGGC 989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAF95161 standard; DNA; 150 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 5.18;
Best Local Similarity 71.78;
                                                    02-AUG-2000; 2000EP-0306563
                                                                                 99JP-0220357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23-MAY-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mycobacterium tuberculosis
                                                                                                         (NISN ) NISSHINBO IND INC. (SYST-) SYSTEM RES INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99; Conservative
                                                                                                                                                  Suzuki Y, Nishida M,
                                                                                                                                                                            WPI; 2001-246696/26.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          katG gene probe #3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         simultaneously.
EP1076099-A2
                                                                              03-AUG-1999;
                         14-FEB-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAF95161;
                                                                                                                                                                                                                                  bac1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAF95161
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
```

```
The present invention relates to oligonucleotides based on nucleotide sequences obtained from both wild-type tubercle bacilli (wtTB) that are susceptible to a drug and mutant-type tubercle bacilli (mtTB) that are resistant to a drug. The drugs used in the present invention are rifampicin (RFP), streptomycin (SM), kanamycin (KM), isoniazid (INH) and chambutol (EB). The rpoB gene is responsible for resistance to RFP; the rrs gene is responsible for resistance to SM; the inhA gene is responsible for resistance to INH; cand the embB gene is responsible for resistance to INH; cand the embB gene is responsible for resistance to INH; cand the embB gene is responsible for resistance to INH; cand the embB gene is responsible for resistance to INH; cand the embB gene is responsible for resistance to INH; invention also relates to nucleic acid probes having part of a nucleotide sequence of tubercle bacilli (TB) responsible for drug resistance and primers used to generate the probes. The present sequence is an prigonucleotide of the present invention. The oligonucleotides of the present invention can be used to enable the differentiation of drug resistance and the determination of infection with tubercle bacilli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1022 GACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCTGGCGGAAG 1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New oligonucleotides, nucleic acid probes and primers are useful for differentiating drug-resistance and determining infection with tubercle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  962 GCTGTGGCCAGTCAAGAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tubercle bacillus; drug sensitivity; drug resistance; rifampicin; streptomycin; kanamycin; isoniazid; ethambutol; rpoB gene; rrs gene; rpsL gene; inhA gene; katG gene; embB gene; probe; PCR primer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 66.8; DB 22; Length 150; Pred. No. 3.6e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          52; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 150 BP; 28 A; 37 C; 54 G; 31 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1082 AGAAGATGACTGGGAGTCGGACCTGGTATA 1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 GGTCGACCAGTGGGAGCCCGATGAGGTCTA 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                             Disclosure; Page 62; 114pp; English.
                                                                    ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAF95159 standard; DNA; 150 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 65.3°
Matches 98; Conservative
(SYST-) SYSTEM RES INC.
                                                                Suzuki Y, Nishida M,
                                                                                                                                    WPI; 2001-246696/26.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          katG gene probe #1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    simultaneously
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAF95159;
                                                                                                                                                                                                                                                                         bacilli
```

us-09-674-277-1.rng

```
01-SEP-2000; 2000DE-1043826.
                                                                                                                                                                                                                                                                             01-SEP-2001; 2001WO-EP10074
   SNP; cell differentiation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (EPIG-) EPIGENOMICS AG
                                                                                                                                      WO200218632-A2.
                                                                        Homo sapiens
                                                                                                                                                                                                            07-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 olek A,
   NAMES OF COLOR COL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              caucheros obtained from both wild-type tubercle bacilli (wtrB) that are susceptible to a drug and mutant-type tubercle bacilli (wtrB) that are resistant to a drug and mutant-type tubercle bacilli (wtrB) that are resistant to a drug the drugs used in the present invention are resistant to a drug the drugs used in the present invention are thambutol (RPP). The rpoB gene is responsible for resistance to RPF; the rsp gene is responsible for resistance to SW, the rpsL gene is responsible for resistance to SW, the inhA gene is responsible for resistance to INH; the katG gene is responsible for resistance to INH; and the embB gene is responsible for resistance to INH; and the embB gene is responsible for resistance to INH; and the embB gene is responsible for resistance to INH; and the embB gene is responsible for resistance to INH; and the embB gene is responsible for resistance and invention also relates to nucleic acid probes having part of a nucleotide sequence of tubercle bacilli (TB) responsible for drug resistance and prignance and the determination of infection with tubercle bacilli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        733 TGGATATGGAGGCTCTGAAAAAAATATCAAAGATTTGCTGACAACTTCCCAGGATTGGT 792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               793 GCCCTGCGGATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCG 852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12 TCGACGTTGACGCCCTGACGGGGACATCGAGGAGTGATGACCACCTCGCAGCCGTGCT 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New oligonucleotides, nucleic acid probes and primers are useful for differentiating drug-resistance and determining infection with tubercle bacilli .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention relates to oligonucleotides based on nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human; cytosine methylation; 5'-CpG-3'; uracil; cytosine; diagnosis;
drug; side effect; cancer; central nervous system; cardiovascular;
gastrointestinal; respiratory system; single nucleotide polymorphism;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oligonucleotide for detecting cytosine methylation SEQ ID NO 9827.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 63.8; DB 22; Length 150;
Pred. No. 3.4e-10;
0; Mismatches 47; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 150 BP; 26 A; 53 C; 48 G; 23 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; Page 61; 114pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Takenishi S;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        132 GCACCTACCGCATCCACGA 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAACATACAGGACATATGA 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABQ23236 standard; DNA; 538
                                                                                                                                                                                                    32-AUG-2000; 2000EP-0306563
                                                                                                                                                                                                                                                                             99JP-0220357
Mycobacterium tuberculosis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                               (NISN ) NISSHINBO IND INC (SYST-) SYSTEM RES INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 66.2
Matches 92; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Suzuki Y, Nishida M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2001-246696/26.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       simultaneously.
                                                             EP1076099-A2
                                                                                                                                                                                                                                                                             03-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-JUL-2002
                                                                                                                                      14-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABQ23236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABQ23236/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 21
```

å 셤 ŝ g à

```
This invention describes a novel method for determining the degree of methylation of a particular cytosine in a motif 5'-cpG-3', present in a genomic sample of DNA. The sample is treated chemically to convert cytosine (C) but not methylated C, to uracil, then part of the genomic cytosine (C) but not methylated C to uracil, then part of the genomic DNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one member, of oligonucleotides and/or peptide-nucleic acid (PNA) oligomers and the degree of hybridisation to both classes is determined from the label on the amplicon. From the ratio of labels hybridised to the two classes of oligomers, the degree of methylation is calculated. The method is used: (1) for diagnosis and/or prognosis of side effects of the reapentic drugs and of a wide range of diseases, e.g. cancer, disorders of the central nervous, cardiovascular, gastrointestinal and respiratory systems etc., particularly by detecting mutations or single nucleotide polymorphisms (SNP's); and (il) for differentiation of call or tissue types and for investigating cell differentiation. The method allows the methylation status of many C residues to be determined simultaneously.

Methylation status of many C residues to be determined simultaneously. The disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1254 AAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGAGGAGACTGTGGCCCTG 1313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     404 TAACTAACTCACCGTCATCCGAAAACGCTAACGAAAACACCGCTAAATACAACCGAAATA 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         344 AATCTAATTTACGTTAACCCGAAAAACCCGAATCACAACGACGACGCGTTTCTACGACA 285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       useful
of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1014 ATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  524 ATTATCCTCGCGAATAACGTAACGCTAAAAAACTCCGACTTCCGTACCTTCGATTTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1134 CTTGCAGATAACCGGGATAAAAACGGGAAACTTCAGAAACCTCTTGCCGCCACGCAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1194 GGACTIATTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1074 GGCGGAAGAAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCCTGACAAGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      464 ACCGATCGTAAAAACGTCTAAAAACCGAATCTAAATATTAACTAAAATTAATAAAAAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1314 ATCGCGGGAGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAA 1366
                                                                                                                                                                     Determining the degree of cytosine methylation in genomic DNA, if or diagnosis and prognosis, comprises selective hybridization amplicons from chemically treated DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%; Score 47.4; DB 24; Length 538; 45.9%; Pred. No. 0.00017; tive 0; Mismatches 191; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 538 BP; 111 A; 47 C; 142 G; 238 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                   Claim 12; 56pp + Sequence Listing; 56pp; German.
ä
Guetig
Berlin K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 3.2
Best Local Similarity 45.9
Matches 162; Conservative
                                                                                     WPI; 2002-371829/40.
```

ö

1194 GGACTTATTTATGTCAATCCTGAAGGCCCCGGTGGAAAACCAGATCCTCTGGCTTCCGCG 1253

195 AATCTAATTTACGTTAACCCGAAAAACCCGAATCACAACGACGAACGGCTTTCTACGACA 254

1134 CITGCAGATAACCGGGATAAAACGGGAAACTICAGAAACTCTTGCCGCCACGCAGATG 1193

75 ACCGATCGTAAAAACGTCTAAAAACCGAATCTAAATATTAACTAAAAATATAAAAAAACC

1074 GGCGGAAGAGAAGATGACTGGGAGTCGGACCTGGTATACTGGGGGCCTGACAACAAGCCT 1133

1254 AAAGATATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTG 1313

255 ACAACTATCCGCGCGACCTTCGACAACATAAACATAAACGACGAAAAAACGTAACGCTA 314

1314 ATCGCGGGGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAA 1366

315

BP.

AAF95162 standard; DNA; 150

(first entry)

23-MAY-2001

AAF95162;

katG gene probe #4.

```
RESULT 2:
AAF95162
                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                  셤
                                                                                                                        ŏ
                                                                                                                                                                                        g
                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This invention describes a novel method for determining the degree of methylation of a particular cytosine in a motif 5'-CpG-3', present in a genomic sample of DNA. The sample is treated chemically to convert cytosine (C) but not methylated C, to ureal, then part of the genomic cytosine (C) but not methylated C, to ureal, then part of the genomic DNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridisation to peptide-nucleic acid (PNA) oligomers and the degree of hybridisation to both classes is determined from the label on the amplicon. From the ratio of labels hybridised to the two classes of oligomers, the degree of methylation is calculated. The method is used: (1) for diagnosis and/or prognosis of side effects of the reapeutic drugs and of a wide range of diseases, e.g. cancer, disorders of the central nervous, cardiovascular, gastrointestinal and respiratory systems etc., particularly by detecting mutations or single nucleotide polymorphisms (SNP's); and (1) for differentiation of cell or tissue types and for investigating cell differentiation. The method allows the methylation status of many C residues to be determined simultaneously.

Method for determining the degree of cytosine methylation described in
                                                                                                                                                                                                                                                                                                                                                                                                                                       Human, cytosine methylation, 5'-CpG-3', uracil; cytosine; diagnosis; drug, side effect; cancer; central nervous system; cardiovascular; gastrointestinal; respiratory system; single nucleotide polymorphism;
Oligonucleotide for detecting cytosine methylation SEQ ID NO 9828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Determining the degree of cytosine methylation in genomic DNA, for diagnosis and prognosis, comprises selective hybridization amplicons from chemically treated DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 538 BP; 238 A; 142 C; 47 G; 111 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 12; 56pp + Sequence Listing; 56pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Guetig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Berlin K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the disclosure of the invention
                                                                                                                                                                                               BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SNP; cell differentiation; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-SEP-2001; 2001WO-EP10074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-SEP-2000; 2000DE-1043826.
05-SEP-2000; 2000DE-1044543.
                                                                                                                                                                                               ABQ23237 standard; DNA; 538
                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (EPIG-) EPIGENOMICS AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2002-371829/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200218632-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                                        12-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           07-MAR-2002.
                                                                                                                                                                                                                                                           ABQ23237;
                                 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  olek A,
                                                                                                                               RESULT 2
ABQ23237
```

Tubercle bacillus; drug sensitivity; drug resistance; rifampicin; streptomycin; kanamycin; isoniazid; ethambutol; rpoB gene; rrs gene; rpsL gene; inha gene; katG gene; embB gene; probe; PCR primer; ss.

Mycobacterium tuberculosis.

EP1076099-A2.

14-FEB-2001.

```
The present invention relates to oligonucleotides based on nucleotide sequences obtained from both wild-type tubercle bacilli (wtTB) that are susceptible to a drug and mutant-type tubercle bacilli (wtTB) that are resistant to a drug and mutant-type tubercle bacilli (wtTB) that are resistant to a drug. The drugs used in the present invention are resistant to EBD. The rpoB gene is responsible for resistance to RPP; the rs gene is responsible for resistance to SW and KW; the rpsL gene is responsible for resistance to SW, the inhA gene is responsible for resistance to INH; the katG gene is responsible for resistance to INH; can the embB gene is responsible for resistance to INH; the tembB gene is responsible for resistance to INH; can the embB gene is responsible for resistance and the invention also relates to nucleic acid probes having part of a nucleotide sequence of tubercle bacilli (TB) responsible for drug resistance and rimers used to generate the probes. The present sequence is an oligonucleotide of the present invention. The oligonucleotides of the present invention be used to enable the differentiation of drug
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New oligonucleotides, nucleic acid probes and primers are useful for differentiating drug-resistance and determining infection with tubercle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Disclosure; Page 62; 114pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Takenishi S;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    02-AUG-2000; 2000EP-0306563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99JP-0220357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (NISN ) NISSHINBO IND INC. (SYST-) SYSTEM RES INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nishida M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2001-246696/26.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Suzuki Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bacilli
A STATE OF S
```

ö

Gaps

ö

Score 47.4; DB 24; Length 538; Pred. No. 0.00017; 0. Mismatches. 191; Indels 0

3.2%;

3.2% Best Local Similarity 45.9% Matches 162, Conservative

15

ð

1014 ATGGTCCTGACTGGTAATGTTGCCCTTGAATCCATGGGATTTAAAACGCTGGGATTTGCT 1073

```
WPI; 1997-425040/39.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAT89278;
                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Barg R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 25
   g
                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                              1260 ATCAGGGAAGCTTTTTCACGTATGGCCATGGATGATGAGGAGACTGTGGCCCTGATCGCG 1319
                                                                                                                                                                1320 GGAGGGCATACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCA 1379
                                                                                         ä
                                                                                                                                                                                        62 GCCGGTCACACTTTCGGTAAGACCCATGGCGCCCGGCCCGATCTGG---TCGGCCCC 118
                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         expression of genes in a first filamentous fungal (FF) cell relative to expression of the same genes in one or more second filamentous fungal cells. The method uses fluorescence-labeled nucleic acids isolated from the Fr cells and a substrate of expressed sequence tags (EST). The ESTS are used in the methods for monitoring differential expression of genes in a first filamentous fungal (FF) cell relative to expression of the same genes in one or more second filamentous fungal cells. Monitoring the global expression of genes from FF cells allows the production potential of the microcorganisms to be improved. New genes may be discovered, possible functions of unknown open reading frames can be identified and gene copy number variation and stability can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cells
                                                                                                                                                                                                                                                                                                                                                                                                                     expressed sequence tag; Fusarium venenatum; Aspergillus niger; Aspergillus oryvae; Trichoderma reesel; identification; recombination; culture condition; environmental stress; spore morphogenesis; metabolic pathway engineering; catabolic pathway engineering; ss.
                                                                                                                             Monitoring differential expression of genes in filamentous fungal celluses fluorescence-labeled nucleic acids isolated from the cells and a
                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention describes a method for monitoring differential
resistance and the determination of infection with tubercle bacilli
                                                             Length 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Clausen IG,
                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                           Multiple gene expression; filamentous fungal cell; EST;
                                                               DB 22;
                                                             Score 46.4; DB 22;
Pred. No. 0.00016;
0; Mismatches 56;
                                    Sequence 150 BP; 26 A; 49 C; 51 G; 24 T; 0 other;
                                                                                                                                                                                                                 1380 GGCCTGATGGTGCACCTGTGGAGGAGCAGGG 1411
                                                                                                                                                                                                                              Kauppinen S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 88; Page 1893-1894; 3161pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              substrate of expressed sequence tags -
                                                                                                                                                                                                                                                                                                                                                                                  Aspergillus oryzae EST SEQ ID NO:4432.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (NOVO ) NOVO NORDISK BIOTECH INC. (NOVO ) NOVO NORDISK AS.
                                                                                                                                                                                                                                                                                                         ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Berka RM, Rey MW, Shuster JR,
                                                                                      ö
                                                                                                                                                                                                                                                                                                     AAF11909 standard; cDNA; 1358
                                                               3.1%;
                                                                         llarity 61.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22-MAR-2000; 2000WO-US07781.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-0273623
                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2000-594572/56
                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Aspergillus oryzae.
              simultaneously
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200056762-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                       13-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28-SEP-2000
                                                                                      93;
                                                                                                                                                                                                                                                                                                                                 AAF11909;
                                                               Query Match
                                                                            Local
                                                                            Best Loc
Matches
                                                                                                                                                                                                                                                                               RESULT 24
                                                                                                                                                                                                                                                                                            AAF11909
SSXS
                                                                                                                                      셤
                                                                                                                                                                ð
                                                                                                                                                                                        g
                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                 à
```

```
ö
monitored. The expression of genes can be used to study how FF cells adapt to changes in culture conditions, environmental stress, spore morphogenesis, recombination, metabolic or catabolic pathway engineering. Using ESTS provides several advantages over genomic or random cDNA clones including elimination of redundancy as one spot on an array equals one gene or open reading frame, and organisation of the microarrays based on function of the gene products to facilitate analysis of the results. AAF01478 to AAF11851 represents ESTS from Aspergillus higher; AAF11854 to AAF11854 represents ESTS from Aspergillus oryzae; and AAF14879 to AAF14878 represents ESTS from Aspergillus oryzae; and all specifically claimed in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              921 AGCIGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAA 980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               801 GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          861 AGGACATATGATGGCCGGGGAGCCCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              442 GACAAGGAGATGGTACCGGAGGTAGCAACGGTGCCACCATGAGATTCGCCCTGAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TPRP-F1; tomato fruit expressed proline-rich protein gene; ovary; promoter; genetic parthenocarpy; auxin modulator; transgenic plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                  Length 1358;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                            Sequence 1358 BP; 258 A; 430 C; 348 G; 322 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                               Score 38.8; DB 21;
Pred. No. 0.19;
0; Mismatches 102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPRP-F1 gene, including the promoter region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     981 AAATACGGCTCCAGTATTTCCT 1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      562 AAGTTCCCTTGGATCACCTACT 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAT89278 standard; DNA; 4320 BP
                                                                                                                                                                                                                                                                                                                                                                                                  2.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96IL-0117139.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag= a
2235..4320
/*tag= b
2644..3684
/*tag= c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ISRA ) ISRAEL MIN AGRIC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1..2643
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lycopersion esculentum.
                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Salts Y;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   prim_transcript
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9730165-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13-FEB-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14-FEB-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19-FEB-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21-AUG-1997
```

Myers EW;

PWD,

ij

Venter JC, Adams M, WPI; 2001-656860/75. P-PSDB; ABB64610.

(PEKE) PE CORP NY

23-MAR-2000; 2000US-191637P. 11-JUL-2000; 2000US-0614150. 23-MAR-2001; 2001WO-US09231.

```
3807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8808 AAATATTTTGATTTATACTACTTATTACGTAGTTTTCATAAGTATAAATTTCATTACATA 3867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  723
                                                                                                                                                                                                                                                                                                                                                                                                                                    424 CTTAGTATTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATA 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3748 AGTTGACATTTCAAGTATTAGGCCCAATTTTCTTAGCTCGGAATTTTTTAAATCTCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGAFTTAACTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   664 TGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGGCTGATTTTGATTATGCCACCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3868 TATGAATTCACGGTCAAAATTTAAAGTTTATTTAACCAATGCCACATAACTTAGAACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        724 TICAACAGCIGGAIAIGGAGGCICIGAAAAAAGAIAICAAAGAITIGCIGACAACIICCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       484 AAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           544 AAAAAACTCTTCCTGTTCTGATTCTTCTGGCGCTATCGGGGAGCTTTTCTACCGCTGTAG
                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                          This sequence comprises a genomic clone of the tomato fruit expressed proline-rich protein gene TPRP-F1, including the promoter region. A claimed method for the production of genetic parthenocarpy in plants comprises: providing a cassette including DNA coding for modulation of auxin effects in plants and a promoter specific for the ovary between anthesis and early fruit development, and introducing the cassette into a plant. Suitable promoters include the TPRP-F1 promoter and an alternative TPRP-F1 promoter see AATB9279) that confers ovary and developing embryo specificity. The method allows parthenocarpy to be induced in especially tomato plants without the need to apply (synthetic)
           Producing genetic parthenocarpy in plants - with sequence encoding auxin modulator controlled by promoter specific for the ovary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drosophila melanogaster expressed polynucleotide SEQ ID NO 20621.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           developmental biology; cell signalling; insecticide;
                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                            Length 4320;
                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                             Sequence 4320 BP; 1450 A; 844 C; 585 G; 1441 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                          Score 38.8; DB 18;
Pred. No. 0.4;
                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              784 AGGATTGGTGCCCTGCGGATTATGGT 809
                                                                                                                                                                                                                                                                                              auxin or auxin inhibitor to each truss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABLO8713 standard; cDNA; 5591 BP
                                                                  Claim 7; Fig 9; 41pp; English
                                                                                                                                                                                                                                                                                                                                                                2.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 43.89
Matches 169; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drosophila melanogaster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pharmaceutical;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200171042-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABL08713;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABL0871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           용
à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1329 ACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCGGGGCCTGAT 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13
                                                                                                                                                                                                                                                                                                                                         resequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                    New isolated nucleic acid detection reagent for detecting 1000 or more genes from Drosophila and for elucidating cell signalling and cell-cell interactions –
                                                                                                                                                                                                                                  The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL16175) and the encoded proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drosophila melanogaster expressed polynucleotide SEQ ID NO 20447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            developmental biology; cell signalling; insecticide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                          Length 5591;
                                                                                                                                                                                                          Claim 1; SEQ ID NO 20621; 21pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                Sequence 5591 BP; 1876 A; 1209 C; 1357 G; 1149 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    52; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                          Score 37.8; DB 23;
Pred. No. 0.99;
0; Mismatches 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABL08655 standard; cDNA; 6000
                                                                                                                                                                                                                                                                                                                                                                                                                             2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23-MAR-2001; 2001WO-US09231.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-191637P.
2000US-0614150.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 57.0
Matches 69; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pharmaceutical; gene; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drosophila melanogaster.
                                                                                                                                                                                                                                                                                                                                  (ABB57737-ABB72072).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1449 A 1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1478 A 1478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200171042-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Drosophila;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABL08655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABL08655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
```

ë

Smith

Lathigra R,

ပဲ

Fraser

```
Dougherty BA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VPI; 2000-594572/56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Fusarium venenatum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rey MW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200056762-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                      Lyme disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Berka RM,
                      Clayton R. White OR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAF07750:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 29
      PH PAR A MAR A PAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1329 ACATTTGGTAAAGCACATGGTGCAGCGTCTCCTGAAAAATGTATTGGCGCAGGGCCTGAT 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1767 acargradasagergargergesecesacergeacesesagesagesages 1826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <del>1</del>8
                                                                                                                                                                                                                                                                                                                                                                             sequences (ABL01840-ABL16175) and the encoded proteins (ABB57737-ABB72072). The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO
                                                                                                                                     New isolated nucleic acid detection reagent for detecting 1000 or more genes from Drosophila and for elucidating cell signalling and cell-cell
                                                                                                                                                                                                                                                    The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticles, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Borrelia burgdorferi; spirochete; bacterium; pathogen; Lyme disease; epidemic relapsing fever; endemic relapsing fever; Lyme borreliosis; infection; diagnosis; characterisation; detection; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 23; Length 6000;
                                                                                                                                                                                                                    Claim 1; SEQ ID NO 20447; 21pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 6000 BP; 2026 A; 1274 C; 1434 G; 1266 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3orrelia burgdorferi polynucleotide sequence #9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 37.8; DE
Pred. No. 1;
0; Mismatches
                                         Myers EW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAX20256 standard; DNA; 14752 BP
                                         PMD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    970S-0050359.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-0053377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98WO-US12764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97US-0057483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                         ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (HUMA-) HUMAN GENOME S
(MEDI-) MEDIMMUNE INC.
                                       Adams M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Borrella burgdorferi
                                                                             2001-656860/75.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
(PEKE ) PE CORP NY.
                                                                                                  P-PSDB; ABB64552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1449 A 1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A 1887
                                                                                                                                                                               Interactions -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9858943-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .8-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3-SEP-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22-JUL-1997
                                     /enter JC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAX20256;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAX20256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           å
```

```
426 TAGTATTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAA 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Monitoring differential expression of genes in filamentous fungal cells uses fluorescence-labeled nucleic acids isolated from the cells and a substrate of expressed sequence tags \cdot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 expressed sequence tag; Fusarium venenatum, Aspergillus niger; Aspergillus oryzae; Trichoderma reesel; identification; recombination; culture condition; environmental stress; spore morphogenesis; metabolic pathway engineering; catabolic pathway engineering; ss.
                                                                                                                                                                                                                                                               AAX20248 to AAX20402 represent polynucleotide sequences isolated from Borrelia burgdorferi (Bb). Products derived from Bb can be used for the detection, diagnosis, characterisation, prevention and therapy of Bb infections, e.g. Lyme disease. They can also be used for the production of blosynthetic products, e.g. enzymes. Borrelia belongs to a family of motile, spiral shaped bacteria called Spirochetes. Spirochetes are pathogenic in humans and Borrelia causes epidemic and endemic relapsing fever, and Lyme borreliosis, more commonly known as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8104 TATTCTTTTATTTCTTTATTATTGCTTCCTGAATAATTATAAAGCGGTGTTTCCAAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Olsen PB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTGACTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGA 540
                                                                New isolated Borrelia burgdorferi nucleic acids - used to develop products for the detection, diagnosis, characterisation, prevention and therapy of infections, particularly Lyme disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 14752;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 14752 BP; 5196 A; 1781 C; 1634 G; 6139 T; 2 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Clausen IG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Multiple gene expression; filamentous fungal cell; EST;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kauppinen S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 4.5;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 36.6;
                                                                                                                                                                                                  Claim 1; Page 893-901; 1128pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fusarium venenatum EST SEQ ID NO:273.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (NOVO ) NOVO NORDISK BIOTECH INC. (NOVO ) NOVO NORDISK AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Shuster JR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 2.5%;
Best Local Similarity 57.4%;
Matches 66; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAF07750 standard; cDNA; 801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22-MAR-2000; 2000WO-US07781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0273623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
WPI; 1999-081217/07.
```

8163

ö

Nucleic acids encoding polypeptides from Staphylococcus epidermidis, useful for vaccinating against infections, e.g. endocarditis -

(GLAX) GLAXO GROUP LID

WPI; 2001-316495/33 P-PSDB; AAG82315

Kimmerly WJ;

```
cells. The present invention describes a method for monitoring differential expression of genes in a first filamentous fungal (FF) cell relative to expression of the same genes in one or more second filamentous fungal cells. The method uses fluorescence-labeled nucleic acids isolated from the FF cells and a substrate of expressed sequence tags (EST). The ESTs are used in the methods for monitoring differential expression of genes in a first filamentous fungal (FF) cell relative to expression of genes from FF cells allows the production potential of the microorganisms to be improved. New genes may be discovered, possible functions of unknown open reading frames can be discovered, possible functions of unknown open reading frames can be discovered, the expression of genes can be used to study how FF cells monitored. The expression of genes can be used to study how FF cells and gene copy number variation and stability can be monitored. The expression of genes can be used to study how FF cells adapt to changes in culture conditions, environmental stress, spore morphogenesis, recombination, metabolic or catabolic pathway

capper gouls none gene or open reading frame, and organisation of the microarrays based on function of the gene products to facilitate analysis of the results. AAF0178 to AAF1187 represents ESTs from Aspergillus oryzae; and product to facilitate analysis of the results. AAF078 represents ESTs from Aspergillus oryzae; and product and 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             801 GATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAACATAC 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 861 AGGACATATGATGGCCGGGGAGGCGCCAGTGGTGGTCAGCAACGTTTTGAACCGCTGAAC 920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             47 GACGATGGCAGTTACGGTCCCGTTCTAGTCCGTCTTGCCTGGCACGTAGTGGCACTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                107 GACAAGGAGACTGGTACTGGTGGCAGTAATGGAGCGACCATGCGATTCGCTCCTGAATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     921 AGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S. epidermidis open reading frame nucleotide sequence SEQ ID NO:1723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 21; Length 801;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Staphylococcus epidermidis ŠR1 strain; infection; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 801 BP; 167 A; 227 C; 205 G; 199 T; 3 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 all specifically claimed in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.4%; Score 36.4; DB 21; Best Local Similarity 49.7%; Pred. No. 0.84; Matches 91; Conservative 0; Mismatches 92;
                      Claim 86; Page 488; 3161pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAH53165 standard; DNA; 327 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   09-NOV-2000; 2000WO-US30782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0164258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         vaccination; endocarditis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Staphylococcus epidermidis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAA 983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             227 AAA 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200134809-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAH53165;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAH53165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
```

```
AAH55304 to AAH53970 represent nucleic acids (I) encoding polypeptides (II), given in AAG81454 to AAG83120, from Staphylococcus epidermidis. (I) and (II) can have antibacterial activity and therefore can be used in vaccination. The nucleic acids (I) may be used to produce the S. epidermidis polypeptides (II) via the production of vectors containing them which are used to produce hosts cells which express the polypeptides. The polypeptides (II) (and/or nucleic acids) may then be used to vaccinate subjects and to raise antibodies against the bacteria. The polypeptides may also be used to assay for other inhibitors of their activity and therefore identify compounds that may be used for the treatment of S. epidermidis infections, e.g. endocarditis. AAH53971 to AAH55090 represent specifically claimed S. epidermidis genomic DNA polymucleotide sequences from the present invention. AAH55091 to AAH55098 represent oligonucleotide sequences and primers which are used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   597 GCTGTAGCCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTA 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             657 ACTCCTCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGGCTGATTTTGATTATGCC 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70 TATATTGTGAGGTTAAACTTTACTGGTGAAATACGACTGAGCCTATCATATCTTATATG 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N.B. The present invention specifically claims all the polynucleotide sequences given in the sequence listing of the present specification, however the sequence listing only goes up to SEQ ID NO:4454 so even though sequences are given in the disclosure for SEQ ID NO:4465 to 4472, no sequences are present for SEQ ID NO:4455 to 4464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130 ACGACGACGCATAACATAGATGTGAATATTCTTGAAGCAGATATTAAGAAT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Staphylococcus epidermidis SR1 strain; infection; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 35; DB 22; Length 327;
Pred. No. 1.4;
0; Mismatches 85; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 327 BP; 119 A; 44 C; 61 G; 103 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S. epidermidis genomic polynucleotide sequence SEQ
                                                                                                                                                                                                                  Claim 8; Page 477; 2188pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAH54197 standard; DNA; 3803 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               vaccination; endocarditis; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09-NOV-2000; 2000WO-US30782.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Staphylococcus epidermidis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 Similarity 50.3
86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200134809-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAH54197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAH54197.
ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
31-MAR-2000; 2000US-0540217.
 30-MAR-2001; 2001WO-US08631
                                                                            HYSE-) HYSEQ INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 33
 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                           ANH52304 to AANH53970 represent nucleic acids (I) encoding polypeptides (II), given in AAG81454 to AAG83120, from Staphylococcus epidermidis. (I) and (II) can have antibacterial activity and therefore can be used (I) and (II) can have antibacterial activity and therefore can be used in vaccination. The nucleic acids (I) may be used to produce the scontaining them which are used to produce hosts cells which express the polypeptides. The polypeptides (II) via the production of vectors containing them which are used to produce hosts cells which express the used to vaccinate subjects and to raise antibodies against the bacteria. The polypeptides may also be used to assay for other inhibitors of their activity and therefore identify compounds that may be used for the treatment of S. epidermidis infections, e.g. endocarditis. AAH53971 to AAH55090 represent specifically claimed S. epidermidis genomic DNA polymuclectide sequences from the present invention. AAH55031 to AAH55098 represent ollygonuclectide sequences and primers which are used in the exemplification of the present invention.

N.B. The present increase sequence listing of the present specification, however the sequence listing of the present specification, however the sequence listing of the present specification, however the sequence listing of the present specification.

Lhough sequences are given in the disclosure for SEQ ID NO:4455 to 4472, and the present specification and the present specification.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTGTAGCCGCTGATAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTA 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATTTAAACGATGATTTTGAAGATTCTTTAGAGTATTTGGAGCCATTAGATCATGATGCA 636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        657 ACTCCTCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGGCTGATTTTGATTATGCC 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     635 TATATTGTGAGGTTAAACTTTACTGGTGAAATACGACTGAGCCTATCATATCTTATATG 576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                       Nucleic acids encoding polypeptides from Staphylococcus epidermidis, useful for vaccinating against infections, e.g. endocarditis -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        717 ACCAGATITCAACAGCIGGATAIGGAGGCTCTGAAAAAAAGAIAICAAAGAI 767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human; chromosome mapping; gene mapping; gene therapy; forensic;
food supplement; medical imaging; diagnostic; genetic disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 22; Length 3803;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             85; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 3803 BP; 1329 A; 547 C; 681 G; 1246 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   no sequences are present for SEQ ID NO:4455 to 4464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA encoding novel human diagnostic protein #8814.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 35; DB;
Pred. No. 6.4;
0; Mismatches
                                                                                                                                                                                 Claim 8; Page 1145-1146; 2188pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            50.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAS73010 standard; cDNA; 824
              99US-0164258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86; Conservative
                                            (GLAX ) GLAXO GROUP LID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 86; Conserva
                                                                                                        WPI; 2001-316495/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200175067-A2
              09-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-0CT-2001.
                                                                           Kimmerly WJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAS73010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAS73010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
```

```
The invention relates to isolated polynucleotide (I) and polypeptide (II) sequences. (I) is useful as hybridisation probes, polymerase chain reaction (PCR) primers, oligomers, and for chromosome and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags for identifying expressed genes. (I) is useful in gene therapy techniques to restore normal activity of (II) or to treat disease states involving (II). (II) is useful for generating antibodies against it, detecting or quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical imaging of sites expressing (II). (I) and (II) are useful for treating disorders involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and amino acid sequences. AsS64197 AsS6454 represent novel human when the polypeptide and polymerators are involved manno acid sequences. AsS64197 AsS64197 Asserts and an and to produce other types of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          977 GAAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGC 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           917 GAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAA 976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     134 GCGCGACTGGGATGTGAACGCCGCAGCCGTTCGTGCTTGTTCTGGAGAAATCCA 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    797 IGCGGATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAAC 856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTCCGTGGTGGCGACAAACGCGGTGGTGCCAACGGTGCGCGTCTGGCATTAATGCCGCA 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14 TGCGGATTCTGGTCTGTTAGTGAGCTGGTATCGGTGGCCTGGGCATCTGCTTCTAC 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Note: The sequence data for this patent did not appear in the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             857 ATACAGGACATATGATGGCCGGGGGGCGCCCAGTGGTGGTCAGCAACGTTTTGAACCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                            New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>ښ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 824 BP; 167 A; 198 C; 261 G; 198 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 34.8; DB 23;
Pred. No. 2.9;
0; Mismatches 122;
                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 1; SEQ ID No 8814; 103pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAS90138 standard; cDNA; 6240 BP.
    Tang YT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 2.3%;
Best Local Similarity 49.2%;
Matches 121; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1037 CCTTGA 1042
Drmanac RT, Liu C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       251 TGTTGA 256
                                                                               WPI; 2001-639362/73
                                                                                                                            P-PSDB; ABG08823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAS90138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAS90138/c
ID AAS90
XX
AC AAS90
```

```
977 GAAAAATACGGCTCCAGTATTTCCTGGGGAGACCTGATGGTCCTGACTGGTAATGTTGC 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human; immune; haematopoietic; immune/haematopoietic antigen; cancer; cytostatic; gene therapy; vaccine; metastasis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human immune/haematopoietic antigen encoding cDNA SEQ ID NO:329.
                                                                                                                                                                                                                                                                                                                                                                                                                      AAK55269 standard; cDNA; 526 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17-JAN-2001; 2001WO-US01354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0190076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-0230437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                 1037 CCTTGA 1042
                                                                                                                                                                                                                            1234 TGTTGA 1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200157182-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo saplens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          05-SEP-2000;
06-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       06-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAK55269;
                                                                                                                                                                                                                                                                                                                                               RESULT 34
AAK55269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                     ò
                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to isolated polynucleotide (I) and polypeptide (II) sequences. (I) is useful as hybridisation probes, polymerase chain reaction (PCR) primers, oligomers, and for chromosome polynucleotides are also used in diagnostics as expressed sequence tags of or dentifying expressed genes. (I) is useful in gene therapy techniques to restore normal activity of (II) or to treat disease states involving to restore normal activity of (II) or to treat disease states involving (II). (II) is useful for generating antibodies against it, detecting or quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical maging of sites expressing (II). (I) and (II) are useful for treating disorders involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in diagnostics, forensics, gene mapping, identification of mutations in the polypeptide and polynucleotide sequences have applications in the polypeptide and polynucleotide sequences have applications in the polynomial of the polynetic disorders or other traits to assess biodiversity and polynucleotide sequences of the polynetide sequences have applications in the polynetide and polynucleotide sequences have applications in the polynucleotide sequences of the polynetide sequences of the pol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1411 CTTCCGTGGTGGCGACAAACGCGGTGGTGCCAACGGTGCGCGTCTGGCATTAATGCCGCA 1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1351 GCGCGACTGGGATGTGAACGCCGCAGCCGTTCGTGCTCTGCCTGTTCTGGAGAAAATCCA 1292,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAACAGCTGGCCGGATAACGTTAATCTGGATAAAGCCCGTCGATTGCTGTGGCCAGTCAA 976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and to produce other types of data and products dependent on DNA and amino acid sequences. AAS64197-AAS94564 represent novel human diagnostic coding sequences of the invention.

Note: The sequence data for this patent did not appear in the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              797 TGCGGATTATGGTCATTATGGTCCTTTCTTTATTCGTATGGCTTGGCACGGTGCCGGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     857 ATACAGGACATATGATGCCCGGGGGGGCGCCCAGTGGTGGTCACCAACGTTTTGAACCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                             Human; chromosome mapping; gene mapping; gene therapy; forensic; food supplement; medical imaging; dlagnostic; genetic disorder; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        e,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 23; Length 6240;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 6240 BP; 1491 A; 1747 C; 1604 G; 1398 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                      DNA encoding novel human diagnostic protein #25942.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 34.8; DB 23;
Pred. No. 10;
0; Mismatches 122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 1; SEQ ID No 25942; 103pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tang YT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-MAR-2001; 2001WO-US08631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31-MAR-2000; 2000US-0540217
23-AUG-2000; 2000US-0649167
                                               13-FEB-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 121; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2001-639362/73.
P-PSDB; ABG25951.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drmanac RT, Liu C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                                                                                                                                              WO200175067-A2.
                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11-0CT-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       917
```

ŏ

셤 ò 유

ô

```
R 66-SEP-2000 2000US-0230438

R 68-SEP-2000 2000US-0231242

R 68-SEP-2000 2000US-0231244

R 68-SEP-2000 2000US-0231244

R 68-SEP-2000 2000US-0231244

R 14-SEP-2000 2000US-0232081

R 14-SEP-2000 2000US-0234081

R 14-NOV-2000 2000US-024921

R 14-NOV-2000 2000U
```

```
carioty and sequences given in AMM81210 to AAM91921. (1) have cytostatic activity, and can be used in gene therapy and vaccine production. (1) proteins and polynucleotides may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate (1) expression. For example, they may be used to treat disorders associated with decreased cypression by rectifying mutations or deletions in a patient's genome that affect the activity of (1) by expressing inactive proteins or to supplement the patients own produce the secreted (1), by inserting polynucleotides may be used to produce the secreted (1), by inserting the nucleic acids into a host cell and culturing the cell to express the protein. (1) proteins and polynucleotides may be used to prevent, diagnose and treat immune/haematopoletic-related diseases, especially cancers and cancer metastases of haematopoletic antigen genomic sequences from the present immune/haematopoletic antigen genomic sequences from the present invention. AAK84942 to AAK84950 and AAM82169 represent sequences used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  588 ITTTCTACCGCTGTAGCCGCTGATAAAAAGGGCCTCAAAATTTCTACTATCCAGAAACA 647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           528 GCTATTCGTATGATAAAAAACTCTTCCTGTTCTGATTCTTCTGGCGCTATCGGGGAGC 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nucleic acids encoding human immune/hematopoietic antigen polypeptides, useful for preventing, diagnosing and/or treating cancers and metastasis -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAK54951 to AAK64702 encode the human immune/haematopoietic antigen (I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 22; Length 526;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 1; SEQ ID NO 329; 3071pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
2.3%; Score 34.6; DB 22; Length 52
Best Local Similarity 52.9%; Pred. No. 2.5;
Matches 73; Conservative 0; Mismatches 65; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 526 BP; 167 A; 97 C; 102 G; 159 T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                       Ruben SM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             648 CTGGATTTAACTCCTCTG 665
                                                                                                                                                            2000US-0251030.
2000US-0251988.
2000US-0256719.
                                                                                                                                                                                                                                                                                                                                                                                   (HUMA-) HUMAN GENOME SCI INC
                                                                                                         2000US-0249300
2000US-0250160
                                                    2000US-0249265
2000US-0249297
                                                                                      2000US-0249299
                                                                                                                                                                                                                     2000US-0251479
                                                                                                                                                                                                                                                                                                                                              05-JAN-2001; 2001US-0259678
                                                                                                                                             2000US-0250391
                                                                                                                                                                                                                                                                                                                                                                                                                     Rosen CA, Barash SC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2001-483426/52.
P-PSDB; AAM82488.
                                                                                    17-NOV-2000;
17-NOV-2000;
01-DEC-2000;
01-DEC-2000;
                                                                                                                                                            05-DEC-2000;
05-DEC-2000;
05-DEC-2000;
                                17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
```

TTTCCTTAGCCACTTCAG 504

487

RESULT 35 ABL70580/c

```
Human gene regulation-associated gene oligonucleotide #216.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Loca
Matches
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to a nucleic acid comprising a sequence of at least bases of a segment of chemically pretreated DNA of genes associated with cell signalling. The activity of the modified sequences of the invention may be described as cytostatic. The object of the invention is to provide the chemically modified DNA of genes associated with cell signalling, as well as oligonuclectides and/or PNA-oligomers for detecting cytosine methylations, as well as method which is particularly suitable for the diagnosis and/or therapy of genetic and epigenetic parameters of genes associated with cell signalling. The chemically modified DNA provided by the invention is useful for diagnosis and therapy of diseases such as solid tumours and cancer. The sequences given in records ABL/0111-ABL/0626 represent chemically pre-treated genomic DNA's of genes associated with cell signalling.

Note: The sequence data for this patent is not represented in the printed specification, but is based on sequence information supplied by the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              445 TATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTTGACTTTTGTATACAAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nucleic acid, useful for diagnosis and therapy of diseases associated with cell signalling e.g. cancer, comprises chemically modified genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                       Chemically treated cell signalling DNA sequence complementary to#235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                        Cell signalling; cytosine methylation; cell signalling disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.3%; Score 34.6; DB 24; Length 6065; 58.1%; Pred. No. 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3093 AAACGAAAAACTACTAAAACTCTACTTAAAAAAAAAAA 3049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   505 ATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATAAAAAA 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 6065 BP; 1602 A; 178 C; 1473 G; 2812 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 1; SEQ ID NO 470; 24pp+sequence listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 with cell signalling e.g. cancer, comprises chemica sequences of genes associated with cell signalling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                            Berlin K;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAS61261 standard; DNA; 6065 BP
                                                                                                                                                             cancer; tumour; cytostatic; ds
 ABL70580 standard; DNA; 6065
                                                                                                                                                                                                                                                                                                                                   30-JUN-2000; 2000DE-1032529
01-SEP-2000; 2000DE-1043826
                                                                                                                                                                                                                                                                                                    29-JUN-2001; 2001WO-EP07471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                          Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                         (EPIG-) EPIGENOMICS AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2002-154758/20
                                                                                                                                                                                                                               WO200202807-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-JAN-2002
                                                                        01-JUL-2002
                                                                                                                                                                                              Unidentified
                                                                                                                                                                                                                                                                 10-JAN-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAS61261;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                     ABL70580;
                                                                                                                                                                                                                                                                                                                                                                                                                              Olek A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAS61261/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DXXXE
```

```
The invention relates to 224 nucleic acid sequences comprising at least 18 bases of a chemically pretreated gene associated with gene regulation selected from 43 known genes (or complementary sequences). The chemical pretreatment converts cytosine bases unmethylated at the chemical pretreatment converts cytosine bases unmethylated at the chemical pretreatment converts cytosine bases unmethylated at the chemical or another base with hybridisation behaviour dissimilar to cytosine, to enable analysis of cytosine methylations. The DNA sequences, oliqomers (or sets/Arrays) and method are useful in the diagnosis of diseases (or predisposition to diseases) associated with gene requiation and in therapy of such diseases, by enabling analysis of the cytosine methylation patterns of such diseases, and therapy of e.g. severe combined immunodeficiency disease, cardiac disorders, haemophilia, solid tumours and cancer, Werner syndrome, asthma, HDR syndrome, Saethre-Chotzen syndrome, renal disease, cardiac disorders, pageneric allocations and cancer, Werner syndrome, asthma, HDR syndrome, Saethre-Chotzen syndrome, renal disease, cardiac disorders, and the sequence data for this specification and is sequence included in the sequence data for this specification and is sequence included and for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        severe combined immunodeficiency;
                                      cardiac damage; inflammatory response; Haemophilia; Werner syndrome; asthma; HDR syndrome; congenital heart defect; Saethre-Chotzen syndrome; renal disease; Preeclampsia; cardiac allograft vascular disease; colorectal cancer; thyroid cancer; oesophageal cancer; ds; tumour; immunostimulant; cardiant; antiinflammatory; coaquiant; antiasthmatic; nephrotropic; gynecological; anti-tumour; immunosuppressive; cytostatic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New nucleic acid sequences from chemically modified genes associated with gene regulation, useful for analysing cytosine methylations for diagnosis and therapy of diseases e.g. severe combined immunodeficiency
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 445 TATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTTGACTTTTGTATACAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Match 2.3%; Score 34.6; DB 24; Length 6065; Local Similarity 58.1%; Pred. No. 12; Local Similarity 6, Mismatches 44; Indels 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    505 AIGCGAAITICCCITAAICCGGAGCIAITCGIAIGAIAAAAAAA 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 6065 BP; 1602 A; 178 C; 1473 G; 2812 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ftp.wipo.int/pub/published_pct_sequences
         dene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 1; SEQ ID No 222; 26pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Berlin K;
    Gene regulation-associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               07-APR-2000; 2000DE-1019173.
30-JUN-2000; 2000DE-1032529.
01-SEP-2000; 2000DE-1043826.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 06-APR-2001; 2001WO-EP03968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Olek A, Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (EPIG-) EPIGENOMICS AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2002-017470/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200177375-A2
                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        06-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-OCT-2001
```

ö

ð

ò

AAZ42098 standard; cDNA; 544

RESULT 38 AAZ42098/

```
signal transduction associated genes. The DNA sequences are chemically modified using a solution of bisulphite, hydrogen sulphite or modified using a solution of bisulphite, hydrogen sulphite. Also disclosed are oligonucleotides and/or PNA oligomers for detecting the cytosine methylation state (CPG islands) of these genes, and a method for the diagnosis and/or therapy of genetic and epigenetic parameters of genes associated with signal transduction. The genomic DNA can be obtained from cells or cellular components which contain DNA, e.g. cell lines, biopsies, blood, sputum, stool, urine, cerebral-spinal fluid, tissue embedded in paraffin such as tissue from eyes, intestine, kidney, brain, heart, prostate, lung, breast or liver, histologic object slides, and all their possible combinations. The sequences of the invention are useful for the diagnosis and therapy of diseases associated with signal transduction e.g. solid tumours and cancer. ABK1158-ABK11545 represent chemically pretreated genomic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human; signal transduction associated gene; cytosine methylation state; CpG island; signal transduction associated disease; solid tumour; cancer; antitumour; cytostatic; mutant; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      445 TATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAAAGTTGACTTTTGTATACAAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequences of different genes associated with signal transduction, or their complementary sequences.
Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oligonucleotide for diagnosis and therapy of diseases associated with signal transduction e.g. cancer, comprises chemically modified genomic sequences of genes associated with signal transduction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                present invention relates to chemically modified DNA sequences of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                     Signal transduction associated gene modified complementary DNA #100.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 24; Length 6065;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        505 ATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATAAAAAA 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 6065 BP; 1602 A; 178 C; 1473 G; 2812 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 34.6; DE
Pred. No. 12;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 1; SEQ ID No 200; 24pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Berlin K;
                                                               ABK31357 standard; DNA; 6065 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.3%;
darity 58.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-JUN-2001; 2001WO-EP07472.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30-JUN-2000; 2000DE-1032529.
01-SEP-2000; 2000DE-1043826.
                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Olek A, Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Suropean Patent Office.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (EPIG-) EPIGENOMICS AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2002-147896/19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
es 61; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200200926-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens,
                                                                                                                                                                                                              23-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic.
                                                                                                                                          ABK31357;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best_Loc
Matches
RESULT 37
                                     ABK31357,
```

g ò

ð

```
This invention describes novel human nucleic acid (cDNA) sequences (A), that are highly expressed in uterine tumour tissue and which have anticancer and cytostatic activity. (A) are used (1) for recombinant expression of polypeptides (B) and (11) to isolate complete genes. (B) are used (1) to identify agents suitable for treatment of uterine or anometrial cancer; (ii) directly for treating these forms of cancer (including expression from gene therapy vectors) and (iii) for generation of specific antibodies. (A) are identified by assembling ESTs (expressed sequence tags) from a particular tissue type before comparison of expression patterns. This allows a significantly inger fragment of the gene to be revealed, so should reduce the number of failures associated with the fact that ESTs from different libraries may represent frequency of occurrence in a particular tissue. AAA41981-242121 represent EST fragments derived from a human endometrium tumour cDNA library which encode the protein sequences represented in AAY59941-Y60328.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      534 IGGIGAICAAATTAACCTTCAGGICCTTTCTCCTCGGAAAGCACTCTACTGCTTCAA 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     474 CAGGTCCAAGCTGCCATCGCCTCTTTTCTGAGTGATTGCAATAGCCCTATCAGGTTTCCA 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          464 TATATCCTGTTGCATCAATAAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATC 523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dahl E;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    345 IGTTTCTGACATCCACAAAGAAGGGAATATTCAGGTCTGCGCAGCACTCAACGGCATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New nucleic acid sequences expressed in uterine cancer tissues, and derived polypeptides, for treatment of uterine and endometrial cancer and identification of therapeutic agents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               405 CAGTTGC-GCCTTGGAACCCCTTAGTATTTTTTGTAGTATCTATCCCAGCAATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                               Endometrium; human; tumour; cancer; anticancer; cytostatic; EST: treatment; uterine; gene therapy; expressed sequence tag; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1;
                                                                                                                                                                                                                                                                                                                                                                                                                                Pilarsky C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 34.4; DB 20; Length 544;
Pred. No. 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches 146; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 544 BP; 158 A; 103 C; 156 G; 127 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                              Specht T, Hinzmann B, Schmitt A,
                                                                                             Human endometrium tumour cDNA derived EST 118,
                                                                                                                                                                                                                                                                                                                                                                                       (META-) METAGEN GES GENOMFORSCHUNG MBH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P-PSDB; AAY60301, AAY60302, AAY30303.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 3; Page 255; 444pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity 47.5%;
                                                                                                                                                                                                                                                                                                                                                   98DE-1017948
                                                                                                                                                                                                                                                                                                            98DE-1017948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 133; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1999-591957/51
                                                                                                                                                                                                                               DE19817948-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                Rosenthal A,
                                                                                                                                                                                                                                                                                                                                                   17-APR-1998;
                                                      31-JAN-2000
                                                                                                                                                                                                                                                                      21-OCT-1999.
                AAZ42098;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
```

셤

셤 ä

à

```
peptide analogues and antagonists.
                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                              RESULT 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
       SXS
                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present invention describes a library of human polynucleotides comprising the sequences given in AAZ12532 to AAZ1779. Also described is a method of detecting differentially expressed genes correlated with the cancerous state of a mammalian cell, comprising detecting at least one differentially expressed gene product in a test sample from a cell cancerous, where the gene product is encoded by one of the 5248 polynucleotide sequences given in AAZ12532 to AAZ17779. The polynucleotides can be used as a source of primers and probes, which can be used for a variety of purpose, e.g. detection of expression levels, mapping, tissue typing or profiling, forensics, genetic analysis and detection of polymorphisms. Polypeptides encoded by the polynucleotides for experimental, diagnostic and therapeutic purposes. The polynucleotides may also be used to construct arrays for diagnostics (which may be used to determine function of an encays for indentity abnormal or diseased tissue in a human, to identify a genetic predisposition or susceptibility to a disease such as cancer. The polynucleotides can also be used to construct diagnosis, prognosis and management of colorectal cancer, breast cancer, and lung cancer. The polynucleotides can also be used to screen for
                                    524 CGGAGCTATTCGTATGATAAAAAAACTCTTCCTGTTCTGATTCTTCTGGCGCTATCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; gene; gene expression product; diagnosis; therapy; probe; detection; mapping; tissue typing; profiling; forensic; cancer; genetic analysis; colorectal cancer; breast cancer; lung cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Crkvenjakov R, Dickson M, Drmanac K, Limusuu C, Bscobedo J, Garcia PD, Garcia V, Giese K, Innis MA; Jones WL, Kassam A, Kennedy GC, Kita D, Labat I; Lamson G, Leshkowitz D, Pot D, Randazzo F, Reinhard C; Stache-Crain B, Sudduth-Klinger J, Williams LT;
                                                                                                                                                                                                                                                                                                                                                                                                   Human gene expression product cDNA sequence SEQ ID NO:2644.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel human genes and their expression products which are differentially expressed in different cell types
                                                                                                                                            294 éccrerrecacedadacacadadadadacadacadadaren 255
                                                                                                   584 GAGCTTTTCTACCGCTGTAGCCGCTGATAAAAAGAGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 1; Page 1286; 2479pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98US-0080666.
98US-0072910.
98US-0075954.
98US-0080114.
98US-0080515.
                                                                                                                                                                                                                                                                AAZ15175 standard; cDNA; 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99WO-US01619
                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1999-494092/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (CHIR ) CHIRON COI
(HYSE-) HYSEQ INC
                                                                                                                                                                                                                                                                                                                                                       12-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                domo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         W09938972-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-JAN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-MAR-1998;
03-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       05-AUG-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28-JAN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24 - FEB-1998
                                                                                                                                                                                                                                                                                                              AAZ15175;
                                                                                                                                                                                                                                             AAZ15175,
```

```
The invention relates to antisense inhibitors of genes essential to prokaryotic cellular proliferation, their use in identifying the genes, their use in the discovery of novel antibiotics, the essential genes themselves and the encoded proteins. The prokaryotes used are ischerichia coli, Staphylococcus aureus, Salmonella typhi, Klebsiella pneumoniae, Pseudomonas aeruginosa and Enterococcus faccalis. The pneumoniae, Pseudomonas aeruginosa and Enterococcus faccalis. The invention is also useful for the identification of potential new targets for antibiotic development. The antisense nucleic acids can also be used to obtain antibodies capable of binding to the expressed proteins, and to obtain antibodies capable of binding to the expressed proteins. The proteins can be used to screen compounds in rational drug discovery programmes. The antisense nucleic acid sequence is also useful to screen for monologous nucleic acids which are required for cell proliferation in a wide variety of organisms. The present sequence is an antisense
                                                                                                     ö
                                                                                                                                                                                                        793 ITAAACCTAGCCNCAGGTTTTCCCCNTGTCACCNAGACTGGAGTTAAGAANCCTGANAAN 734
                                                                                                                                                                                                                                                              611 TAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAACTCCTCTGAGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Staphylococcus aureus cellular proliferation inhibitory sequence #835.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Carr GJ;
                                                                                                     Gaps
                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New polynucleotides for the identification and development of antibiotics, comprise sequences of antisense nucleic acids -
                                                  DB 20; Length 800;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Trawick JD,
                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Antisense; ss; prokaryotic cellular proliferation; antibiotic; antibacterial; drug design.
                                                                                                     55;
25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wall D,
Sequence 800 BP; 255.A; 153 C; 158 G; 209 T;
                                                                         Pred. No. 4.4;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 1; Seq ID No 2188; 511pp; English.
                                                  Score 34.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ohlsen KL, Zyskind JW,
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAS49611 standard; DNA; 893 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-191078P.
2000US-206848P.
2000US-207727P.
2000US-24578P.
2000US-253625P.
                                                  ch 2.3%;
1 Similarity 53.4%;
63; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-MAR-2001; 2001WO-US09180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2001US-269308P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ELIT-) ELITRA PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-611495/70.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200170955-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-MAY-2000;
23-OCT-2000;
27-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Haselbeck R,
Yamamoto RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-FEB-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21-MAR-2000;
23-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAS49611;
                                                        Query Match
Best Local (
```

Page 29

us-09-674-277-1.rng

```
8888888888888888888
                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                      å
                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                     g
                                                                                                  ö
                                                                                                                                                                              30 AAAGTICAAAIGCTICTGCAICTIGGAAATIGCCTITITIATCACGCAACTCCAICTAAIA 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention relates to antisense inhibitors of genes essential to prokaryotic cellular proliferation, their use in identifying the genes, their use in the discovery of novel antibiotics, the essential genes themselves and the encoded proteins. The prokaryotes used are Escherichia coli, Staphylococcus aureus, Salmonella typhi, Klebsiella pneumoniae, Pseudomonas aeruginosa and Entercoccus faecalis. The invention is also useful for the identification of potential new targets
                                                                                                                     483 AAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Carr GJ;
                                                                                                  Gaps
                                                                                                                                                                                                          GCCGCTGATAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAA 657
                                                                                                                                                                                                                               150 TCGCCTCTAGTACAAATTGATAACCAAATGTATCATCGATAAGTCCTTCGTTTAA 204
                                                                                                                                                                                                                                                                                                                                                   Staphylococcus aureus DNA for cellular proliferation protein #1664
                                                                             DB 23; Length 893;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New polynucleotides for the identification and development of antibiotics, comprise sequences of antisense nucleic acids -
Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Trawick JD,
                                                                                                88; Indels
                                                                                                                                                                                                                                                                                                                                                                        Antisense; ds; prokaryotic cellular proliferation gene; antibiotic; antibacterial; drug design.
                                                      Sequence 893 BP; 273 A; 161 C; 119 G; 340 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Wall D,
                                                                           Score 34.2; DE
Pred. No. 4.7;
                                                                         Query Match 2.3%; Score 34.2; D
Best Local Similarity 49.7%; Pred. No. 4.7;
Matches 87; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 27; Seq ID No 8989; 511pp; English.
                                  ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ohlsen KL, Zyskind JW,
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     200005-206848P
200005-207727P
200005-242578P
200005-253625P
200005-253625P
200105-269308P
                                                                                                                                                                                                                                                                                   AAS55352 standard; DNA; 927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-MAR-2001; 2001WO-US09180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-191078P
                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (ELIT-) ELITRA PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                         Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2001-611495/70.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P-PSDB; AAU37493.
                                                                                                                                                                                                                                                                                                                                                                                                                              WO200170955-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-MAY-2000;
26-MAY-2000;
23-OCT-2000;
27-NOV-2000;
22-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-FEB-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Haselbeck R,
Yamamoto RT,
                                                                                                                                                                                                                                                                                                                               13-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   27-SEP-2001
                                                                                                                                                                                                         603
                                                                                                                                                                                                                                                                                                          AAS55352;
                                                                                                                                                                                                                                                                         AAS55352,
  2222228
                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                               ò
                                                                                                                                                                                   셤
                                                                                                                                                                                                         ð
                                                                                                                                                                                                                             셤
```

```
for antiblotic development. The antisense nucleic acids can also be used to identify proteins used in proliferation, to express these proteins, and to obtain antibodies capable of binding to the expressed proteins. The proteins can be used to screen compounds in rational drug discovery programmes. The antisense nucleic acid sequence is also useful to screen for homologous nucleic acids which are required for cell proliferation in a wide variety of organisms. The present sequence encodes an essential prokaryotic cellular proliferation protein.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIDO at
                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     483 AAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Trawick JD, Carr GJ;
                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   603 GCCGCTGATAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAA 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Staphylococcus aureus DNA for cellular proliferation protein #667.
                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New polynucleotides for the identification and development antibiotics, comprise sequences of antisense nucleic acids
                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Antisense; ds; prokaryotic cellular proliferation gene; antibiotic; antibacterial; drug design.
                                                                                                                                                                                                                                                                                                                        Sequence 927 BP; 347 A; 116 C; 169 G; 295 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                      DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wall D,
                                                                                                                                                                                                                                                                                                                                                                      Score 34.2; DE
Pred. No. 4.8;
0; Mismatches
                                                                                                                                                                                                                                                                        ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 27; Seq ID No 4832; 511pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ohlsen KL, Zyskind JW,
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAS52250 standard; DNA; 1164 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-206848P.
2000US-207727P.
2000US-242578P.
2000US-253625P.
2000US-257931P.
                                                                                                                                                                                                                                                                                                                                                                      Query Match 2.3%;
Best Local Similarity 49.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21-MAR-2001; 2001WO-US09180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2001US-269308P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13-FEB-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 87; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (ELIT-) ELITRA PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-611495/70.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P-PSDB; AAU34391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40200170955-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23-OCT-2000;
27-NOV-2000;
22-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Haselbeck R,
Yamamoto RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-MAY-2000;
26-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-FEB-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27-SEP-2001
```

```
The invention relates to antisense inhibitors of genes essential to prokaryotic cellular proliferation, their use in identifying the genes, their use in the discovery of novel antiblotics, the essential genes themselves and the discovery of novel antiblotics, the essential genes themselves and the discovery of novel antiblotics, the essential genes themselves and the discovery of novel antiblotic used in the proteins. The prokaryotes used are Bscherichia coll, Staphylococcus aureus, Salmonella typhi, Klebsiella invention is also useful for the identification of potential new targets for antiblotic development. The antisense nucleic acids can also be used to dentify proteins used in proliferation, to express these proteins. The proteins can be used to screen compounds in rational drug discovery programmes. The antisense nucleic acid sequence is also useful to screen for homologous nucleic acids which are required for cell proliferation in a wide variety of organisms. The present sequence encodes an essential prokaryotic cellular proliferation protein.

Note: The sequence data for this patent did not form part for the printed specification, but was obtained in electronic format directly from WIPO at the printed protein, while many contains the contains the printed protein the printed protein the printed protein the printed protein the sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "these bases represent a line of missing text in
the sequence listing in the specification. They
are included to maintain the nucleotide numbering
given in the specification for this DNA sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            483 AAAGTIGACTITIGIATACAACATGCGAATTICCCTIAATCCGGAGCTATICGIATGATA 542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         543 AAAAAAACTCTTCCTGTTCTGATTCTTCTGGCGCTATCGGGGGGGCTTTTCTACCGCTGTA 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Computer readable medium; vaccine; S.aureus infection; immunodetection; cellulitis; eyelld infection; food poisoning; osteomyelitis; therapy; skin infection; surgical wound infection; scalded skin syndrome; toxic shock syndrome; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     603 GCCGCTGATAAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAA 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901 TCGCCTCTAGTACAAATTGATAACCAAATGTATCATCGATAAGTCCTTCGTTTAA 847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 23; Length 1164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1164 BP; 426 A; 164 C; 203 G; 371 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 2.3%; Score 34.2; Di
Best Local Similarity 49.7%; Pred. No. 5.6;
Matches 87; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Staphylococcus aureus contig SEQ ID #565.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
1561..1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAV74876 standard; DNA; 2554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96US-0009861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= a
/note= "t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Staphylococcus aureus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             07-JAN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      05-JAN-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EP786519-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-JUL-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAV74876;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAV7487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d
*888888888888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
```

```
of the invention. The DNA sequences are recorded on a computer readable cof the invention. The DNA sequences are recorded on a computer readable medium, preferably selected from a floppy or hard disk, random access continum, preferably selected from a floppy or hard disk, random access that branes by the Saureus DNA sequences allows putative functions to be assigned so that protein-encoding or regulatory regions of commercial, therapeutic or industrial importance can be obtained. Specifically, sequences which are linkely to encode antigens have been identified and these polypeptides can be obtained against Saureus infection. The collypeptides can also be used in a kit for the immunodetection of Saureus in a sample. Saureus is implicated in numerous human diseases, including cellulitis, eyelid infections, food poisoning, osteomyelitis, skin and surgical wound infections, scalded skin syndrome, toxic shock syndrome, etc. Organisms transformed with the DNA sequences can be used for recombinant production of the polypeptides. The new DNA sequences can be used for necombinant saureus DNA sequences contained on the homologues of any of the saureus DNA sequences contained on the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence represents one of 5191 Staphylococcus aureus DNA sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human; 98P6C3; ss; homeodomain protein; vaccine; cytostatic. epitope; transgenic animal; immunogen; T cell; B cell; cytotoxic T cell. CTL; prostate cancer; bladder cancer; kidney cancer; lung cancer; breast cancer; uterine cancer; cervical cancer; stomach cancer; rectal cancer; colon cancer; chromosome 4q11-q12; PCR primer; adapter; suppression subtractive hybridisation; SSH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            543 AAAAAAACTCTTCCTGTTCTGATTCTTCTGGCGCTATCGGGGGAGCTTTTCTACCGCTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         465 ATAATTTTTTTATTTATCTGGTTCTTCAGTAGCACTTGTCACGATTGAAAACTATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            483 AAAGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 603 GCCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACACTGGATTTAA 657
                                                                                                                                      Polynucleotide(s) and proteins derived from Staphylococcus aureus
stored on computer readable medium and used in the production of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 2554;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                   Kunsch CA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human cDNA fragment for cancer related protein 98P7C3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2554 BP; 793 A; 433 C; 328 G; 933 T; 67 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      88;
                                     Fannon MR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 34.2; DI
Pred. No. 9.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                    Claim 1; Page 1503-1504; 3271pp; English.
                                     Dillon PJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAS99435 standard; cDNA; 188 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.38;
(HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity 49.7 tes 87; Conservative
                                                                                                                                                                                anti-S.aureus vaccines
                                     Choi GH,
                                                                                                WPI; 1997-374922/35.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200190157-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29-NOV-2001
                                       Barash SC,
                                                          Rosen CA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAS99435;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAS99435,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
```

antiinflammatory

SS

Tang YT;

Drmanac RA,

```
l proteins useful for the treatment and diagnosis of diseases with dysfunction of the protein e.g. cancers, immune growth disorders, thrombolytic disorders, nervous system
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The invention relates to novel foetal polypeptides encoded by polynucleotides comprising one of 477 sequences fully defined in the specification. The foetal polynucleotides and polypeptides are useful in the treatment and diagnosis of diseases such as cancers, immune disorders, growth disorders (e.g. osteoporosis), thrombolytic disorders, nervous system disorders and inflammation. The present sequence is a full length cDNA which was assembled using expressed sequence tags (ESTs) found to be expressed in human foetal tissue
                                                                                 nootropic; neuroprotective; thrombolytic; osteopathic; antiinfi
gene therapy; antisense therapy; cancer; immune disorder;
growth disorder; osteoporasi; thrombolytic disorder;
nervous system disorder; inflammation; expressed sequence tag;
                                                               protein; cytostatic; immunosuppressive;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      f, Arterburn MC,
Werhman T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example 3; Page 666; 715pp; English.
     Human foetal cDNA, SEQ ID NO: 1179.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Novel fetal proteins useful for associated with dysfunction of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Boyle BJ,
Zhou P, We
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAH93991 standard; cDNA; 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-SEP-2000; 2000US-0663870.
06-NOV-2000; 2000US-0707351.
                                                                                                                                                                                                                                                                                                                                                                                            25-JAN-2001; 2001WO-US02723
                                                                                                                                                                                                                                                                                                                                                                                                                                                   25-JAN-2000; 2000US-0491404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             disorders and inflammation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA libraries as seeds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    545 AAAAACTCTT 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        165 AAAGTCACTT 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2001-465571/50.
P-PSDB; AAM06817.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   , Ford JE,
Asundi V,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
Matches 70; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                                                 WO200155339-A2.
                                                             foetal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               05-OCT-2001
                                                                                                                                                                                                                                                                                                                                        02-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                disorders,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yeung G,
Liu C, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAH93991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAH9399.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
     NAME OF THE PROPERTY OF THE PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BX BX B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  polynucledides) or a host cell transformed with the vector, an anti-98PC3 antibody, an non-human transgenic animal expressing a 98PC3 antibody, an non-human transgenic animal expressing a purelectides in a biological sample, monitoring the presence of polynuclectides in a biological sample, monitoring the presence of cancer in an individual by detecting an elevated level of the 98PC3 protein or polynuclectides and a pharmaceutical composition comprising a modulator of 98PC3. 98PC3 protein, or cell/8 cell epitopes derived from it, are useful in inducing an immune response (in mammal) to a 98PC3 protein. Upon contact with a cytotoxic T cell (CTL) the immunogens induce the CTL (with its helper T cell) to kill an autologous cell expressing 98PC3. The immunogen may be a nucleic acid encoding the protein or epitope. The antibody is useful for delivering a cytotoxic agent to a cell that expresses 98PC3, by conjugating the cytotoxic agent to the antibody or its fragment that specifically binds to a 98PC3 epitope, and exposing the cell to the antibody-agent conjugate. The modulator is useful for treating a patient with a cancer that expresses 98PC3 epitope, and exposing the cell to the antibody-agent conjugate. The modulator is useful for treating a patient with a cancer that expresses 98PC3 (e.g. prostate cancer, langer cancer, lung cancer, rectal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                460 TAGGTATATCCTGTTGCATCAATAAAGTTGACTTTTGTATACAACATGCGAATTTCCCTT 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence is oligonucleotide adapter or PCR primer used to isolate a cDNA sequence for 98P7C3 by the method of suppression subtractive hybridisation, SSH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    113 TNAGTITATITIGNINAATAAANTGAACTGCTTTTTGTCTCTAAAAINATNTTTTNAATN 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            homeodomain protein highly expressed in various cancers. Also include are polynucleotides encoding the protein or proteins 90% identical to 98P7C3, a pharmaceutical composition comprising the polynucleotides (including an expression vector comprising the 98P7C3 encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cancer and colon cancer), by administering to the patient a vector that comprises the modulator, such that the vector delivers a single chain monoclonal antibody coding sequence to the cancer cells and the encoded single chain antibody is expressed intracellularly in it.

The gene for 98P7C3 is located on human chromosome 4q11-q12. The prese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Gaps
                                                                                                                                                                                                                                                                                                                            New isolated 98P7C3-related homeodomain protein highly expressed invarious cancers, useful in cancer vaccines and for generating immune response directed to 98P7C3 in mammal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to an isolated 98P7C3-related protein which is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 34; DB 24; Length 188;
Pred. No. 2.1;
0; Mismatches 38; Indels
                                                                                                                                                                                               Afar DEH, Levin E;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 188 BP; 55 A; 19 C; 15 G; 80 T; 19 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        520 AATCCGGAGCTATTCGTATGATAAAAAA 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Faris M,
                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 1; Fig 1; 155pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              вР
                                                                                                                                                                                          Challita-Eid PM, Hubert RS, Mitchell SC, Jakobovits A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAH94492 standard; cDNA; 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        57.8%;
                          24-MAY-2001; 2001WO-US17495
                                                                                 24-MAY-2000; 2000US-207138P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 5/..
Best Local Similarity 5/..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                        UROG-) UROGENESYS INC
                                                                                                                                                                                                                                                                           WPI; 2002-097642/13.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      05-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAH94492;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAH94492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a x 2 x b x
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
```

```
ö
                                                                                                                                                                                      425 TTAGTATTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCATAA 484
                                                                                                                                                                                                                                                45 TAATTICTTTTCTTAGGGGTCTGTTACTGATGAATTATTATGTCCTTTTGGAGGTATCA 104
                                                                                                                                                                                                                                                                                                                485 AGTTGACTTTTGTATACAACATGCGAATTTCCCTTAATCCGGAGCTATTCGTATGATAAA 544
                                                                                                                                                                                                                                                                                                                                                                         105 retricciticititicaretriciterecitacetracatraarateceacatecare 164
                                                                                                                                Gaps
                                                                                                                            ö
                                                            2.3%; Score 34; DB 22; Length 308; 53.8%; Pred. No. 2.8;
                                                                                                                            60; Indels
Sequence 308 BP; 59 A; 63 C; 46 G; 140 T; 0 other;
                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human foetal cDNA, SEQ ID NO: 520.
```

```
antianaemic; dermatological; immunosuppressive; antiinflammatory;
    TAN TO THE TOTAL TO THE TOTAL THE TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                113 IGTITCCTITTITCATGITICTIGIGECCTIACATIAATATCTGCACAICTGATGIA 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             425 TTAGTATTTTTGTCTGTAGTATCTATCCCAGCAATAGGTATATCCTGTTGCATCAATAA 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         485 AGTIGACITITGIAIACAACAIGCGAAITICCCITAAICCGGAGCIAIICGIAIGAIAAA 544
                                                  antiinflammatory;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      diseases
                              Human; foetal protein; cytostatic; immunosuppressive; immunostimulant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The invention relates to novel foetal polypeptides encoded by polypuclectides comprising one of 477 sequences fully defined in the specification. The foetal polypuclectides and polypeptides are useful in the treatment and diagnosis of diseases such as cancers, immune disorders, growth disorders (e.g. osteoporosis), thrombolytic disorders, nervous system disorders and inflammation. The present sequence was assembled using an expressed sequence tag (EST) found to be expressed in human foetal tissue cDNA libraries as the seed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Novel fetal proteins useful for the treatment and diagnosis of dises associated with dysfunction of the protein e.g. cancers, immune absociate, growth disorders, thrombolytic disorders, nervous system disorders and inflammation.
                                                                                                                   nervous system disorder; inflammation; expressed sequence tag; EST;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           J, Arterburn MC, Drmanac RA, Tang YT;
Werhman T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human; nootropic; neuroprotective; cytostatic; antiparkinsonian;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 34; DB 22; Length 316;
Pred. No. 2.9;
                                                  nootropic; neuroprotective; thrombolytic; osteopathic; ant
gene therapy; antisense therapy; cancer; immune disorder;
growth disorder; osteoporosis; thrombolytic disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA encoding novel prostate gland antigen, Seq ID No 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 316 BP; 61 A; 65 C; 50 G; 140 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 1; Page 367-368; 715pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0450/c
AAS30450 standard; DNA; 636 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ford JE, Boyle BJ,
sundi V, Zhou P, We
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.3%;
                                                                                                                                                                                                                                                                                                                                   25-JAN-2000; 2000US-0491404.
15-SEP-2000; 2000US-0663870.
06-NOV-2000; 2000US-0707351.
                                                                                                                                                                                                                                                                                            25-JAN-2001; 2001WO-US02723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  disorders and inflammation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21-NOV-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 2.3
Best Local Similarity 53:8
Matches 70; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          173 AAAGTCACTT 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAAAACTCTT 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2001-465571/50.
P-PSDB; AAM06316.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Asundi V,
                                                                                                                                                                                                                                                                                                                                                                                                                             (HYSE-) HYSEQ INC
                                                                                                                                                                                                        WO200155339-A2
                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                    02-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAS30450;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAS30450,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MX EX BX SX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
         KKWWKWWKWWKWWKWWKWWKWWKWWKWWKWWKWWKWWWKWWWKWWWKWWWKWWWKWWWKWWWKWWWKWWKWWKWWKWWWKWWKWWKWWKWWKWW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
```

```
antiatrhitic, antirheumatic; virucide; hepatotropic; nephrotropic; osteopathic; prostate gland; prostatitis; adenocarcinoma; hair loss; prostatosis; malacoplakia; adenocarcinoma; benign prostatic hypertrophy; hyperplasia; carcinoma; prostate neoplastic disorder; skin aging; reproductive system disorder; autoimmune disorder; skin aging; reproductive system disorder; autoimmune disorder; urinary system; systemic lupus erythematosus; rheumatoid arthritis; cardiovascular; blood-related disorder; hyperproliferative disorder; respiratory; neurological disorder; endocrine disorder; inflammatory disorder; liver disorder; wound healing; food preservative; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-JAN-2001; 2001WO-US01330
                                                                                                                                                                                                                                                                                                                                                                                                                   WO200155447-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           04-FEB-2000;
24-FEB-2000;
02-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                      Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-AUG-2000
14-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               L4 - AUG - 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14 - AUG - 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14 - AUG - 2000
```

```
2000US-0251988
            14 - SEP - 2000;
14 - SEP - 2000;
14 - SEP - 2000;
21 - SEP - 2000;
25 - SEP - 2000;
25 - SEP - 2000;
26 - SEP - 2000;
27 - SEP - 2000;
29 - SEP - 2000;
                                                                                                                                         02-OCT-2000;
02-OCT-2000;
02-OCT-2000;
02-OCT-2000;
13-OCT-2000;
                                                                                                                                                                             13-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
10-0CT-2000;
10-0CT-2000;
10-0CT-2000;
                                                                                                                                                                                                                                                                   08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
08 - NOV - 2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    -NOV-2000;
-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -NOV-2000;
                                                                                                                                  -OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17 -NOV - 2000;
                                                                                                                                                                                                                                                      08-NOV-2000;
08-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                      17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -DEC-2000:
********************************
```

```
The invention relates to novel isolated prostate gland related nucleic acids (I) and polypeptides (II). (I) and (II) are useful for diagnosis, prevention, and/or treatment of diseases and/or disorders of the prostate such as acute non-bacterial prostatitis, chronic non-bacterial prostatitis, malacoplakia benign prostatic chromas, transitional call carcinomas, ductal carcinomas, and prostate neoplastic disorders (II) and antibody to (II) are useful for diagnosing and treating reproductive system disorders (alsease), autoinmune disorders (systemic lugus erythematosus, rheumatoid autoinmune disorders (systemic lugus erythematosus, rheumatoid autoin-carlated disorders (sickle cell anaemia), hyperproliferative disorders (sickle cell anaemia), hyperproliferative disorders (alsease), conformine disorders, musculoskeletal system disorders, neural activity cand neurological disorders, disorders (alsease), conformine disorders (Alzhahmer's disorders of the large intestine, conformental and alpharited disorders, disorders of the large intestine, conformental and inherited disorders, diseases at the callular level, and wound healing and epithelial cell proliferation. (I) or (II) is useful to prevent skin aging, for preventing hair loss, to maintain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        573 TCTTGTGTTGCTCAGGCTGGTCTCAAACTCCTGCTAGCCTGTTGTTTTTGAGCCACTAA 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                662 TCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAG 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human; reproductive system related antigen; reproductive system disorder;
                                                                                                                                                                                                                                                                                                                                                Novel isolated prostate gland related polypeptide useful for diagnosis and treatment of disorders of prostate such as prostatodystonia, prostatosis, prostatitis, benign prostatic hypertrophy and malacoplakia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human reproductive system related antigen DNA SEQ ID NO: 8918.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 34; DB 22; Length 636;
Pred. No. 4.4;
0; Mismatches 40; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   722 ATTTCAACAGCTGGATATGGAGGCTCTGAAAAAAGATA 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            513 GTAACAACAGCTTAACATGAAGTATATGAAGTCAGCTA 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 1; SEQ ID No 308; 512pp; English.
                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           230/c
AAL06230 standard; DNA; 636 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.3%;
                                                               20000S-0251868.
20000S-0251869.
20000S-0251989.
20000S-0251990.
                                                                                                                                                                                                                    (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                           2001US-0259678
                                             2000US-0251856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-NOV-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.3
Best Local Similarity 59.2
Matches 58; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cancer; gene therapy; ds
                                                                                                                                                                                                                                                               Rosen CA, Barash SC,
                                                                                                                                                                                                                                                                                                          WPI; 2001-476223/51.
                                                                                                                              08-DEC-2000;
11-DEC-2000;
05-JAN-2001;
05-DEC-2000;
06-DEC-2000;
08-DEC-2000;
                                                                                     08-DEC-2000;
08-DEC-2000;
                                                                   08-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAL06230;
    å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
```

ö

Homo sapiens

```
(HUMA-) HUMAN GENOME SCI INC
      29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
20-OCT-2000;
20-OC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0235484
2000US-0235834
                                                                                                17-JAN-2001; 2001WO-US01339
                 WO200155320-A2
                                                                                                                                      31-JAN-2000;
04-FEB-2000;
                                                         02-AUG-2001
```

```
WO200157182-A2.
                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                      31-JAN-2000;
                                                                                                                                                                                                                                                                                      06-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                              09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6-JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1-AUG-2000
                                                                                                                                                                                                                                                                  AAK65489;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -AUG-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4-AUG-2
                                                                                                                                                                                                                             RESULT 50
                                                                                                                                                                                                                                                                                                888888888888
                                                                                                                                        ð
                                                                                                                                                        a
                                                                                                                                                                             ð
                                                                                                                                                                                              g
                                                                                                                                                                                                                                                         XXXX
                                                                                                                                                                                      ö
                                                                                                                                                                                                      662 TCTGAGATTACACAGCCCTGAATCAAATCCCTGGGGGGCTGATTTTGATTATGCCACCAG 721
                                                                                                                                                                                                                          573 TCTTGTGTTGCTCAGGCTGGTCTCAAACTCCTGCTAGCCTGTTGATTTTTGAGCCACTAA 514
                                                                                  The present invention provides the protein and coding sequences of a number of human reproductive system related antigens. These can be used in the prevention and treatment of reproductive system disorders, including cancer. The present sequence is a genomic sequence encoding a protein of the invention.
                                     Isolated nucleic acid molecule encoding a reproductive system antigen is used in preventing, treating or ameliorating a medical condition
                                                                                                                                                                                      0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The sequence may be used to determine the number of NR genes per maize genome and to study the effect of various environmental conditions, incl. the presence of nitrate on the level of NR mRNA of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cloned DNA sequence encoding maize nitrite reductase - useful for determn. of NR number and study of NR mRNA regulation and nitrate
                                                                 Disclosure; SEQ ID NO 8918; 1297pp + Sequence Listing; English.
                                                                                                                                                               Score 34; DB 22; Length 636;
Pred. No. 4.4;
0; Mismatches 40; Indels
                                                                                                                                                                                                                                                                                                                                                                                            Nitrite reductase; nitrate; maize; spinach; probe; NR; ss.
                                                                                                                                              Sequence 636 BP; 153 A; 133 C; 129 G; 221 T; 0 other;
                                                                                                                                                                                                                                              722 ATTTCAACAGCTGGATATGGAGGCTCTGAAAAAAGATA 759
                                                                                                                                                                                                                                                         Location/Qualifiers
9..1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 2; Page 9-10; 10pp; English.
                                                                                                                                                                                                                                                                                                                AAQ12000 standard; cDNA; 1844 BP
 S.
 Ruben
                                                                                                                                                                  2.3%;
59.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      /*tag= a
/product= NR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         89US-0324154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89US-0324154
                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cahners KN, Rothstein SJ;
                                                                                                                                                                Query Match 2.3 Best Local Similarity 59.2 Matches 58; Conservative
                                                                                                                                                                                                                                                                                                                                                                          Maize nitrite reductase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (CIBA ) CIBA-GEIGY CORP.
Barash SC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1991-206821/28.
P-PSDB; AAR12517.
                   WPI; 2001-465570/50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      assimilation.
                                                                                                                                                                                                                                                                                                                                                      25-SEP-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6-MAR-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-MAR-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US4997930-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-MAR-1991
                                                                                                                                                                                                                                                                                                                                                                                                                 Lea mays L.
 Rosen CA,
                                                                                                                                                                                                                                                                                                                                    AAQ12000;
                                                                                                                                                                                                                                                                                                                            셤
 å
                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                         ₽
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           169 GAAGCATCAGAAGGGGGGGGAACTCCGTCCGGCCAGTGAACCGTGCCACACTCCGGGCA 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human; immune; haematopoietic; immune/haematopoietic antigen; cancer; cytostatic; gene therapy; vaccine; metastasis; ds.
maize plants grown under selected conditions. The CDNA may also be used to study NR mRNA regulation in maize. The CDNA is obtd. using lambda gill as the cloning vector and a spinach NR cDNA as heterologous probe. The CDNA clone (PCIB808) is 66% homologous at the nucleotide level with the spinach NR gene, however the maize DNA has a high G/C content (66.5%) as compared to that of the spinach gene (46%) and is 75% homologous at the amino acid level.
                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human immune/haematopoletic antigen genomic sequence SEQ ID NO:20301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTACATGCCGCCGCGCTGATACCGGCAAGAATGGTCGCAAAACTCCCGCTCCGT 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        524 GGTGAGGCCGACGCGCGGCGTCCAGGATGGCCGGGACGTCCGGGAGCGT 471
                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                 DB 12; Length 1844;
                                                                                                                                                                                                                                                                                                                                                                                                                                    50; Indels
                                                                                                                                                                                                                                                                                   Sequence 1844 BP; 338 A; 582 C; 655 G; 269 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                          Query Match 2.3%; Score 34; DB 1
Best Local Similarity 56.1%; Pred. No. 8.6;
Matches 64; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAK65489 standard; DNA; 16605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-JAN-2001; 2001WO-US01354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-0220964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
```

```
02-0CT-2000;
13-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
14-AUG-2000;
18-AUG-2000;
22-AUG-2000;
22-AUG-2000;
22-AUG-2000;
23-AUG-2000;
33-AUG-2000;
01-SEP-2000;
01-SEP-2000;
01-SEP-2000;
01-SEP-2000;
05-SEP-2000;
05-SEP-2000;
06-SEP-2000;
                                                                                                                                             29-SEP-2000;
29-SEP-2000;
02-OCT-2000;
                                                                                                                                                        02-OCT-2000;
02-OCT-2000;
```

```
17-NOV-2000; 2000US-0249218
17-NOV-2000; 2000US-0249244
                                                                                                                                                                                                                                                                                                         17-NOV-2000; 2000US-0249216
17-NOV-2000; 2000US-0249217
                                                                                                                                                                                                                                                                                                                                                                                                                       17-NOV-2000; 217-NOV-2000; 217-NOV-2000; 217-NOV-2000; 217-NOV-2000; 217-NOV-2000; 201-DEC-2000; 201
```

(HUMA-) HUMAN GENOME SCI INC

Barash SC, Ruben SM; Rosen CA,

WPI; 2001-483426/52

Nucleic acids encoding human immune/hematopoietic antigen polypeptides, useful for preventing, diagnosing and/or treating cancers and metastasis -

Disclosure; SEQ ID NO 20301; 3071pp + Sequence Listing; English.

amino acid sequences given in AAM82170 to AAM91921. (1) have cytostatic amino acid sequences given in AAM82170 to AAM91921. (1) have cytostatic activity, and can be used in gene therapy and vaccine production. (1) proteins and polynucleotides may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate (1) expression. For example, then may be used to treat disorders associated with decreased expression by rectifying mutations or deletions in a patient's genome that affect the activity of (1) by expressing inactive proteins or to supplement the patients own production of (1). Additionally, (1) polynucleotides may be used to produce the secreted (1), by inserting the nucleic acids into a host cell and culturing the cell to express the channel and cancer metastases of haematopoietic-related diseases, especially cancers and cancer metastases of haematopoietic-drigned sepecially cancers and cancer metastases of haematopoietic-drigned sepecially sequences from the present invention. AAK84942 to AAK87694 represent invention. AAK84942 to AAK87690 and AAM82169 sequences trom the present invention. AAK84942 to AAK87690 and AAM82169

Sequence 16605 BP; 4009 A; 3696 C; 4212 G; 4688 T; 0 other;

°, Query Match 2.3%; Score 34; DB 22; Length 16605; Best Local Similarity 52.9%; Pred. No. 34; Matches 73; Conservative 0; Mismatches 65; Indels 0 528 GCTATTCGTATGATAAAAAAGTCTTCCTGTTCTGATTCTTCTGGCGCTATCGGGGGAGC 587

ŏ

```
14753 GATATAAATACAATAAAATTCACTTTCTATATACCATTTCCATGCTTTATGACAAGTG 14812
                                                            588 ITTTCTACCGCTGTAGCCGCTGATAAAAAGAGACTCAAAATTTCTACTATCCAGAAACA 647
           q
```

1 0 4		G 14872
5	=	AAAAAG
なってなてっ	=	CTATCTC
4171717	= = =	ATTTCTA
	=======================================	ACTTAAA
TITITION OF THE PROPERTY OF TH	= -	14813 TGTGTAAGTTCTATAACTACCACAGTTGAGACTTAAAATTTCTACTATCTCAAAAAG
	_ =	ACTACCA
2	= - = =	ATAACT.
7	= _	AGTTCT
,	_	TGTGT
		14813
7		g

ç q

Search completed: June 18, 2003, 02:09:14 Job time : 270.397 secs

THIS PAGE BLANK (USPTO)

```
M. capsulatus gene
DNA encoding enzym
Nucleotide sequenc
R. marinus bacteri
Mycobacterium tube
                                                                                                            Pyrococcus abyssi
M. capsulatus gene
Bacillus lichenifo
Human prostate exp
Human soluble Zalp
Human foetal liver
Human bone marrow
Probe #8926 used t
Human soluble Zalp
M. capsulatus gene
Human DNAX cytokin
Gene encoding a su
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human prostate exp
Human Tryptophan-2
Gene #3340 used to
Human Tryptophan O
Human prostate exp
Human immune/haema
                                                                                                                                                                                                                                                                                                                                                                                                                  DNA encoding a suc
Propionibacterium
Bacillus lichenifo
Human secreted pro
Human immune/haema
                                                                                                                                                                                                                                                                                          Human prostate exp
Bacillus lichenifo
S cerevisiae apopt
DNA encoding novel
                                                                                                                                                                                                                                                                                                                                               Human prostate exp
Stealth virus nucl
Human nervous syst
                                                                                                                                                                                                                                                                                                                                                                                       Human Immune/haema
Human DNAX cytokin
DNA encoding a suc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human phosphatase
DNA encoding novel
Zea mays DNA fragm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA encoding novel
Human prostate exp
Human prostate exp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human immune/haema
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human prostate exp
Human prostate exp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Yeast AOD9604-asso
Chemically pretrea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human prostate exp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human prostate exp
Granulocytic Ehrli
Granulocytic Ehrli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Polynucleotide seq
Human prostate exp
Human prostate exp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human prostate exp
Human prostate exp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA encoding human
Human prostate exp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pseudomonas aerugi
Human reproductive
                                                                                  Pyrococcus abyssi
Stealth virus nucl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human prostate e
Human prostate e
Human prostate e
Human prostate e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human prostate
Human prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human
 ABQ90082
AAZ45259
AAZ30356
AAF25833
AAI99683
AAI99682
AAH41227
                                                                                            AXR4332
AAH41226
ABY4128
ABY4126
ABY4139
ABY41264
ABY41284
AAH41284
AAH41384
AAH41384
AAH41384
AAH41384
AAH41384
                                                                                                                                                                                                                                                                                                                                 AAS65293
ABV48872
AAX84332
                                                                                                                                                                                                                                                                                                                                                                         ABA19027
AAK75576
AAD06413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAK86350
ABV46580
AAS80187
ABV48846
ABV48840
AAV4847284
AAV47284
AAV81786
AAV81786
AAV81786
ABV47287
ABV47287
ABV47287
ABV47284
ABV4833
ABV46335
ABV46317
ABV46317
ABV41178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAQ21623
ABV48730
                                                                                                                                                                                                                                                                                                                    AAH29949
3.5 1098
3.4 14245
3.4 130480
3.4 4403765
3.4 4403765
3.3 426518
3.3 5059
3.3 349980
3.3 1100
3.1 1108
3.1 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   492
3147
5570
366
                                                                                                                                                                                                                                     741
1029
1029
1029
1650
1650
1859
426
426
426
1666
1614
1614
1613
133
135
135
138
138
138
138
138
138
138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1647
1712
3442
471
15463
15463
484
494
2904
2904
516
516
587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1122
11649
                                                                                                                                                 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      υu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Plasmid pan240 car
Mycobacterium tube
Mycobacterium tube
Bacillus lichenifo
Bacillus clausii g
Bacillus clausii g
Bacillus lichenifo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic acid seque
virk gene of Dysen
                                                                                         June 17, 2003, 13:22:38; Search time 198.603 Seconds (without alignments) 13391.616 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                         **SIDS2/gcddata/geneseqn-embl/NA1980.DAT:**
SIDS2/gcddata/geneseqn-embl/NA1981.DAT:*
SIDS2/gcddata/geneseqn-embl/NA1981.DAT:*
SIDS2/gcddata/geneseqn-embl/NA1981.DAT:*
SIDS2/gcddata/geneseqn-embl/NA1981.DAT:*
SIDS2/gcddata/geneseqn-embl/NA1981.DAT:*
SIDS2/gcddata/geneseqn-embl/NA1986.DAT:*
SIDS2/gcddata/geneseqn-embl/NA1986.DAT:*
SIDS2/gcddata/geneseqn-embl/NA1986.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1980.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1980.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1991.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1992.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1992.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1992.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1992.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1992.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1995.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1995.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1995.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1995.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1995.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1995.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1999.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1999.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1999.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1999.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1999.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1999.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1999.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1999.DAT:*
SIDS2/gcddata/geneseq/geneseqn-embl/NA1999.DAT:*
                                                                                                                                                                            ctgcaggagatggaaaaaa......ttttactttttctctgcag 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /SIDS2/gcgdata/geneseq/geneseqn-embl/NA2001A.DAT:*/SIDS2/gcgdata/geneseq/geneseqn-embl/NA2001B.DAT:*/SIDS2/gcgdata/geneseq/geneseqn-embl/NA2002.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Description
                                                                                                                                                                                                                                                                         4370478
              GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                        hits satisfying chosen parameters:
                                                                                                                                                                                                                                               residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                         Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 150 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAZ36102
AAQ55982
AAS02323
AA199683
AA199682
ABK74404
ABK78827
ABK78820
ABK74480
                                                                    nucleic search, using sw model
                                                                                                                                                                                                                                              2185239 seqs, 1125999159
                                                                                                                                                                                                      IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                  N_Geneseq_101002:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21
22
22
22
24
24
24
24
                                                                                                                                                                                                                                                                                                   seq length: 0
seq length: 2000000000
                                                                                                                                              US-09-674-277-2
1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10801
4403765
4411529
1135
783
783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1181
1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.8.8.4.4.8.8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1181
64.2
64.2
57.2
57.2
49.6
46.2
                                                                                                                                                                 score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score
                                                                                                                                                                                                      Scoring table:
                                                                    •
                                                                                                                                                                                                                                                                         rotal number
                                                                                                                                                                                                                                                                                                   Minimum DB s
Maximum DB s
                                                                OM nucleic
                                                                                                                                                                            Sequence:
                                                                                                                                                                                                                                              Searched:
                                                                                                                                                                                                                                                                                                                                                                                                  Database
                                                                                                                                                               Perfect
                                                                                            Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
```

us-09-674-277-2.rng

Human i	Human	Human d	DALINCHE TITELL	d Human	lut	Q.	æ.	- 6	ъ.			dos	glut		d usmu				Staphyl	Stapnyi		Human	Human F	_	c .	d ugung			Human H	~	Human	Human H	1	S	an	at .	Human F	Human H	Human	Human	Human F	Human	Human Human	d manuar	uma n	пша	Homan	Human	~ (I ugumu	Human	Human	JMa	Human	Human	Human	Ę	
AAS2891	AAK8907	AAK8907	AAAU0/3	ABV4858	AAH6541	ABQ9021	ABK6382	AAQ9435	ABEN 61	ABL6194	ABK8445	ABL0758	AAH6852	ALC FVEA	ABV4122	ABV4467	ABV4844	ABV4823	AAS5202	AASSA4/	AAA9636	ABV1638	ABV4761	ABV4915	ABV4859	ABV4813	ABVAR97	ABV4920	ABV4969	ABV4852	ABV4646	ABV46/4	AAF2946	ABL1010	ABV4983	ABV4971	ABV44/5	ABV49//	ABV4774	ABV4916	ABV4608	ABV4889	ABV46UI	ABVARA	ABV4962	ABV4705	ABV4786	ABV4935	ABV4857	ABV4800	ABV4952	ABV4775	ABV4894	ABV4690	ABV4764	ABV.	ABV4911	
7	~	N (- ·	4 (7	. ~	~	~ ~		, ,	. ~	2	~	~ ·	,,	10	2	~	7	~ ~	, c		10	2	~ .		- c	4 IC		6	C)	~ ~	<i>y</i> 10	4 C		2	~		- L	. 0	.60	0	0	A C	4 C	. 6	7	4	~ 1		90	. 6	1	7	in o) r	31 23	2	
16	9	16	4 4 R	200	2	~	9	S	ე -	717	3	97	⊅ <	7 4	48	48	49	9	131	ດະ	٥ (4	45	47	20.0	4 10	7 6	200	20	57	50.0	۰,	315	വ	27	36	3:	4.4	44	4.5	46	4	2 4	7	4	47	47	4.	4	4 4	4	48	46	4	4 4	4.4	4	
																								٠			•		•	•	•	•			•	•	•				•	•	•	•		•	•	•	•	•		•	•	•	•	. 7.	•	
2	oi o	'n,	, ,		'n	ä	oi o	ni c	•	32.2	5	ci o	٠,٠	4 6	35	32	32	32	32	25.6	3 6	· ::	÷.	d.	નં.	-i -	: -	: -:	Ξ.	.i	넊.	-i -	; ;	i	ä	H,	∹.	-i -		$\vec{}$	÷.	⊣,	-i -	i -		H	i.	ä,	٦,	.	; ;;	÷.	H.	٠i,	٠,	31.6	<u> </u>	
8	C 84	200	D C	88	8	c 90	0 0	љ a	2 6	95	96	c 97	ס ס	h (\sim	\sim	\sim	10	\circ	7.	20	0	_				- -	-		~ ·	- 0	1 5	10	17	~	\sim	<i>7</i> (4 C	1 N	ന	m	ന	חת	ח תי	າຕ	ന	n	m,	∢ ⋅	• •	. 4	•	4	ͺ,	₹ ₹	149	ູພາ	

ITCTGTTAATAICAAACCGGTACTCAATATCTTCTGGGGGCTGGCTGCCATCATCCGGA 300 AGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCGGTCCATGCAGACACATCCCCCA 360 The present sequence is specific to enterohemorrhagic Escherichia coli (EHEC). The sequence associated with the presence of virulence factors enterohemolysine (ehly) and intimin (eas). Nucleotides 237-570 also have 68% homology with the virk gene which codes for virulence proteins of Shigella flexneri. The present sequence is of plasmid origin. Fragments of the present sequence are used, as probes and primers, for detection of E. coli 0157:H7 and other enterohemorrhagic E. coli (EHEC), in human or animal samples, foods or the environment. The fragments are also useful for epidemiological studies. GCCGTTATCTGTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCG Gaps Enterohemorrhagic Escherichia coli; EHEC; virulence factor; enterohemolysine; ehly; intimin; eae; virK gene; E. coli 0157:H7; ds. Nucleic acid sequence specific to enterohemorrhagic Escherichia coli New nucleic acid containing sequences specific to enterohemorrhagic Escherichia coli, particularly serotype 0157:H7, used for detecting these bacteria in food Query Match
Best Local Similarity 100.0%; Score 1181; DB 21; Length 1181;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1181; Conservative 0; Mismatches 0; Indels 0; Sequence 1181 BP; 305 A; 317 C; 277 G; 282 T; 0 other; (SNFI) PASTEUR SANOFI DIAGNOSTICS. Frechon DTM, Laure FC, Thierry D; AA236102 standard; DNA; 1181 BP. Claim 1; Fig 2; 48pp; French 98FR-0005329. 99WO-FR01000 11-FEB-2000 (first entry) WPI; 2000-013443/01. Escherichia coli. W09955908-A2. 27-APR-1999; 28-APR-1998; 04-NOV-1999. 241 181 181 241 301 AAZ36102; RESULT 1 AAZ36102 a δ 유 음 q ò ద ö Qγ ò Human prostate exp Human prostate exp C glutamicum codin M. capsulatus gene Rat sequence diffe Yeast AOD9604-asso Polymorphic repeat Human prostate exp Bacillus subtilis Murine brevidin cD Drosophila melanog Human digestive sy Human digestive sy Salmonella enteric BHV1 gI glycoprote Drosophila melanog Human cDNA differe prostate exp prostate exp prostate exp prostate exp prostate exp prostate exp Colon adenocarcino Human cDNA differe C glutamicum codin Human prostate exp prostate exp prostate exp prostate exp Orosophila melanog prostate exp prostate exp prostate exp

prostate e

prostate prostate prostate prostate prostate prostate

prostate

prostate

Staphylococcus Staphylococcus

prostate

prostate e

prostate prostate prostate prostate prostate prostate prostate prostate prostate prostate prostate prostate prostate prostate

prostate prostate

prostate

m

```
390 TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGAC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 TGAATAACATCAGGGATTCCACCAATCTGACTGGCCAGTACAGGCACAGAAAATGCCGAT 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     510 ATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCCATTAACACATTCTCCGCTCATT 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 ACCCGATATACGGGGGGGCGCAGAAAAACATTGTCAGCAATAAAAACATCATGATG 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         210 TGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                         270 TCTTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACTTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241 AGGGCGCACATCCATGCGTGCTTATTACCTGCTGGTAACAATGTCCCGGTCTGGTTATTC
                                                                                                                                                                                                                                                                             Dysentery causing bacillus species can be rendered non-pathogenic delettion or mutefation of the virk and/or thyA genes. These non-pathogenic mutant strains can be used as attenuated vaccines to protect against infection with their wild type, disease causing
                                                                                                                                                                                                                         Highly safe attenuated live dysentery vaccine – prepd. from Shigella strain having mutated or deleted virk and/or thyA gene
                                                                                                                                                                                                                                                                                                                                                                   13.5%; Score 159.4; DB 15; Length 1642; 65.1%; Pred. No. 1.1e-41;
                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                              Sequence 1642 BP; 451 A; 311 C; 376 G; 504 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches 126;
                                                         product.
                         Location/Qualifiers 373..1323
                                                                                                                                                                                                                                                        Claim 4; Page 2-3; 15pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮲
                                              /*tag= a
/product= virK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              standard; DNA; 10801
                                                                                                                                                                   (SHKJ ) SHINGIJUTSU JIGYODAN.
                                                                                                                                              92JP-0210772.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                         Conservative
  Shigella flexneri 2a
                                                                                                                                                                                         WPI; 1994-079289/10.
                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
nes 235; Conserv
                                                                                                                                                                                                   P-PSDB; AAR49047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 570 C 570
                                                                              JP06030766-A
                                                                                                                                                                                                                                                                                                                           counterparts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101
                                                                                                                       15-JUL-1992;
                                                                                                                                             15-JUL-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18-JUL-2001
                                                                                                    08-FEB-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    330
                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAS02323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAS02323
                                                                                                                                                                                                                                                                                                                                                                                 Best Loca
Matches
                         Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAS02323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 3
   유英
                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S X I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTGT 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCGTCGAAGTC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATCATGCCCTC 1140
                                                                                                                                                                                                                       999
                                                                                                                                                                                                                                                                                                                                ACGGTCGCATGGCTTCATTATGCAATGCGGCCCAGTCGAAACCCGGTGGAATAACCGTTA 840
                                                               TGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCAT 480
                                                                                                                                                                                                                                            720
                                                                                                                                                                                                                                                                                                                                                                            CCGGTGTCCTGACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAA 900
                                           420
                                                                                                                                                       9
                                                                                                                                                                             900
                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                       CCTGAACGATAAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTA 780
                                                                                                                                                                                                                                                                                                                                                                                                  CCGGTGTCCTGACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAA 900
AGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCA 360
                                                                                                                       TCAGCTGATACAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                        TGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTTT
                                                                                                          TTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGG
                                                                                                                                                       CTTCGTATTCTTCACGCCCGGCCCCACCACGAGCCAGCGAAATGATTTCCCTTCCATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dysentery; Shigella flexneri; Shigella boydii; Shigella sonnei; Shigella desenteriae; vaccine; attenuation; mutation; deletion; infection; immunity; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITITICIGCCTICCGGAGCAATITIACTITITICICIGCAG 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 virK gene of Dysentery bacillus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 2
AAQ55982/C
ID AAQ55982 standard; DNA; 1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1141
301
                     361
                                                                421
                                                                                     421
                                                                                                          181
                                                                                                                               481
                                                                                                                                                      541
                                                                                                                                                                            541
                                                                                                                                                                                                 601
                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                            99
                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                                                                        901
                                                                                                                                                                                                                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAQ55982;
                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                            a
                                                                                                                                                                         g
                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                          å
                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                        셤
                                                                õ
                                                                                   음
                                                                                                         ç
                                                                                                                                                     ò
                                                                                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
```

ö 269

Gaps

ρχ

329 242 389 182

509

Mycobacterium tuberculosis; strain H37Rv; strain CDC 1551; genome; variation; epidemiology; patient treatment; epidemic monitoring; ds.

Mycobacterium tuberculosis.

US6294328-B1

NO 2.

Mycobacterium tuberculosis strain H37Rv genome SEQ ID

15-JAN-2002

AA199683;

```
Evaluating strain variation of Mycobacterium tuberculosis, comprises determining the nucleotide sequence of the strain at positions in the genome corresponding to positions where M. tuberculosis strains CDC 1551 and H37Rv differ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6490 GGCTGTTGCGGCCGTAACATCACCGACATCCACAAAAATCCGCTCACATTGTTTTTAT 6549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6610 AAGCAGGACAAGGCCAAAGCTTTCTTTTCAGATAGCAGCAGCTTCAAATCGCTAATAGA 6669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5550 AACCTCAGGGATACCGCCAATGTTTGTTCCAATACAAGGCACTCCGCAAGCCATCGCTTC 6609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The sequence, pAN240, is a plasmid carrying the B. subtilis PanBCD operon which encodes three enzymes of the pantothenate biosynthetic pathway (PanB, C and D). Pantothenate, also known as vitamin B5, is used as a nutritional supplement in mammals and humans. The invention concerns methods of producing recombinant microorganisms overexpressing at least one B. subtilis pantothenate biosynthetic enzyme. The microorganisms and methods of producing them are useful for producing a panto-compound such as pantothenate or pantoate, which is a nutritional requirement for livestock and humans. The methods are also useful for the identification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAAT 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 455 AGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACCACACTGGCAATCCG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6670 ATAAAGATCTTCAACACGGTCTTGATTTCCAAGCATTAAGACTTGGTCTTCCAAGCC 6726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New recombinant microorganism which overexpress a Bacillus subtilis pantothenate biosynthetic enzyme, useful for the high yield production of panto-compounds such as pantothenate and pantoate -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCC 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              395 GACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of pantothenate kinase modulators. Panto-compounds are produced at a significantly higher yield than prior art methods and can be produced independent of the need to feed precursors which decreases expense.
                                                            PanBCD operon; pantothenate biosynthesis; cyclic; circular; pAN240; vitamin B5; nutritional supplement; panto-compound; pantoate; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 10801;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 10801 BP; 2797 A; 2486 C; 2151 G; 3367 T; 0 other;
                    Plasmid pAN240 carrying the B. subtilis PanBCD operon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 64.2; DB 22;
Pred. No. 1.2e-09;
0; Mismatches 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pero JG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example 1; Page 232-238; 292pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hermann
                                                                                                                          Chimeric - Bacteriophage SPO1.
Chimeric - Escherichia coli.
Chimeric - Bacillus subtilis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               54.48:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OMNI-) OMNIGENE BIOPRODUCTS
                                                                                                                                                                                                                                                                                                                                                                        07-JUN-2000; 2000US-0210072.
28-JUL-2000; 2000US-0221836.
                                                                                                                                                                                                                                                                                                         21-SEP-2000; 2000WO-US25993.
                                                                                                                                                                                                                                                                                                                                                                                                                    24-AUG-2000; 2000US-0227860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 54.4
Matches 129; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patterson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2001-218644/22.
                                                                                                                                                                                                                    WO200121772-A2
                                                                                                                                                                                                                                                                                                                                                   21-SEP-1999;
                                                                                                                                                                                                                                                                29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yocum RR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
```

4; SEQ ID NO 2; 3pp + Sequence Listing; English.

Venter JC;

White OR, Fraser CM,

WPI; 2001-647261/74. Fleischmann RD,

98US-0103840.

24-JUN-1998;

25-SEP-2001,

(GENO-) INST GENOMIC RES

```
ö
The invention relates to evaluating strain variation within and between different populations of the tuberculosis bacterial pathogen, Mycobacterium tuberculosis or related Mycobacterium by determining the nuclectide sequence of the first strain at positions in the complete sequence of the genome that correspond to positions that differ in the nuclectide sequences of M. tuberculosis strains CDC 1551 (AAI99683) and H37Rv (AAI99682). The method is useful for evaluating strain variation of M. tuberculosis and has valuable application in the fields of tuberculosis genetics, epidemiology, patient treatment and epidemic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                392 AATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGC 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 4403765 BP; 757105 A; 1447799 C; 1441301 G; 757371 T; 189 other;
                                                                                                                                                                                                                                                                                                                                                           Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from USPTO at seqdata.uspto.gov/sequence.html?DocID=6294328B1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2447433 GGCGTCGGCCACCCGGTCCACCGACCTACCGTCGACCACTAGCCCAGTCTTGTTGTTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         272 TTCTCTGGCGCTGGCTGCCATCATCCGGAGCGTTCCGGTCGGGATAAAAATCGCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCGCCGGTCCATGCAGACACATCCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2447553 TTCGAGGAACACGATGCCCAAGCCCTCGACGTCC 2447586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 57.2; DB 22;
Pred. No. 8.3e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ITCAGCCAGIACCAIACCAAACGCIICAIIIICC 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity 54.2
nes 116; Conservative
                                                                                                                                                                                                                                                                                                                                            monitoring.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
```

AA199682 standard; DNA; 4411529 BP

RESULT 5
AAI99682
ID AAI9

AA199683 standard; DNA; 4403765 BP

RESULT 4 Ω×

g

à

õ g à 윱 à us-09-674-277-2.rng

```
Differential gene expression; genomic seguenced tag; GST; altered culture condition; environmental stress; physiological provocation; ds.
                                                                       Bacillus licheniformis genomic sequence tag (GST) #1695.
                                                                                                                                                                                                                                                                                                                                                                                (NOVO ) NOVOZYMES BIOTECH INC. (NOVO ) NOVOZYMES AS.
                                                                                                                                                                                                                                                                                                                            06-OCT-2000; 2000US-0680598.
27-MAR-2001; 2001US-279526P.
                                                                                                                                                                                                                                                                                      05-OCT-2001; 2001WO-US31437
                                       13-AUG-2002 (first entry)
                                                                                                                                                                                 Bacillus licheniformis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2002-416684/44.
                                                                                                                                                                                                                   WO200229113-A2.
                                                                                                                                                                                                                                                     11-APR-2002.
   ABK74404;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Berka R,
   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to evaluating strain variation within and between different populations of the tuberculosis bacterial pathogen, Mycobacterium tuberculosis or related Mycobacterium by determining the nucleotide sequence of the first strain at positions in the complete sequence of the genome that correspond to positions that differ in the nucleotide sequences of M. tuberculosis strains CDC 1551 (AA199683) and H37Rv (AA199682). The method is useful for evaluating strain variation of M. tuberculosis and has valuable application in the fields of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TICTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAG 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from USPTO at seqdata.uspto.gov/sequence.html?DocID=6294328B1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 4411529 BP; 758565 A; 1449983 C; 1444602 G; 758379 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Evaluating strain variation of Mycobacterium tuberculosis, comprises determining the nucleotide sequence of the strain at positions in the genome corresponding to positions where M. tuberculosis strains CDC 1551 and H37Rv differ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                332 TGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      392 AATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGC
                                                                                                      Mycobacterium tuberculosis; strain H37Rv; strain CDC 1551; genome; variation; epidemiology; patient treatment; epidemic monitoring; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.8%; Score 57.2; DB 22; Length 4411529;
54.2%; Pred. No. 8.3e-06;
tive 0; Mismatches 98; Indels 0; G
                                                                 Mycobacterium tuberculosis strain H37Rv genome SEQ ID NO 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 3; SEQ ID NO 1; 3pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2450252 TTCGAGGAACACGATGCCCAAGCCCTCGACGTCC 2450285
                                                                                                                                                                                                                                                                                                                                                                                Venter JC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCAGCCAGTACCATACCAAACGCTTCATTTTCC 485
                                                                                                                                                                                                                                                                                                                                                                              Fraser CM,
                                                                                                                                                                                                                                                                    98US-0103840.
                                                                                                                                                                                                                                                                                                     98US-0103840
                                                                                                                                                             Mycobacterium tuberculosis,
                                                                                                                                                                                                                                                                                                                                                                            White OR,
                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 116; Conservative
                                                                                                                                                                                                                                                                                                                                           (GENO-) INST GENOMIC RES
                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2001-647261/74.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                              Fleischmann RD,
                                                                                                                                                                                                                                                                  24 - JUN-1998;
                                 15-JAN-2002
                                                                                                                                                                                              JS6294328-B1
                                                                                                                                                                                                                                                                                                     24-JUN-1998;
                                                                                                                                                                                                                                25-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               452
AAI99682;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
```

Clausen IG;

```
The invention describes a method of monitoring differential expression of genes in a first Bacillus cell relative to expression of the genes in other Bacillus cells; comprising hybridising babelled nucleic acid probes isolated from Bacillus cells to a substrate containing array of Bacillus Genomic sequenced tags (GST), examining the array, and determining catastic probes in a first bacillus cells to a substrate containing the expression by an observed hybridisation reporter signal of a spot in the array. The method is useful for measuring the expression of a spot in the array of Bacillus cells. The method is useful for monitoring global expression of several genes from a Bacillus cell, discovering new genes, identifying possible functions of unknown open reading frames and monitoring gene copy number variation and stability. Monitoring changes in which Bacillus cells adapt to changes in culture conditions, in which Bacillus cells adapt to changes in culture conditions, considering and stress or other physiological provocation. Extensive collow-up characterisation is unnecessary, when one spot on an array equals one gene or one open reading frame, since sequence information is the method of the invention.

Cholow-up characterisation is unnecessary, when one spot on an array caulable. This sequence represents a genomic sequence tag (GST) used in the method of the invention.

Che method of the invention.

Che method of the invention.

Che method of the invention is electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      351 ACATCCCCCACGGGTAACAGCGTCCCTGTCATTCTTCTGAATGACATCAGGGATCCCG 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             977 ATAICICCGACAICGACCAAGIAACCGGAIACICCGIIITIGAICACCICGGGAAICCC 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            411 CCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCA 470
Monitoring differential expression of several genes in first Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                               cell relative to expression of same genes in one or more second
Bacillus cells, by using substrate containing Bacillus genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4.1%; Score 49; DB 24; Length 1135; 50.2%; Pred. No. 3.5e-05; tive 0; Mismatches 120; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1135 BP; 327 A; 251 C; 278 G; 279 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   :tp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                       Claim 4; SEQ ID NO 1695; 200pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 50.25
Matches 121; Conservative
                                                                                                                                               sequenced tag array
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              d
```

ABK74404 standard; DNA; 1135 BP

RESULT 6 ABK74404/c

g ö

ð

셤 ð 셤

```
ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                       g
 S X X X
                                                                                                                                                   g
                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                              윤
                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                         ð
                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention describes a method of monitoring differential expression of genes in a first Bacillus cells, comprising hybridaing labelled nucleic acid probes cother Bacillus cells, comprising hybridaing labelled nucleic acid probes cother Bacillus cells, comprising hybridaing labelled nucleic acid probes isolated from Bacillus cells to a substrate containing array of Bacillus cells expression by an observed hybridisation reporter signal of a spot in the array. The method is useful for measuring the expression of genes in a first Bacillus cell relative to expression of the same genes in one or more second Bacillus cells. The method is useful for monitoring genes in dentifying possible functions of unknown open reading frames and monitoring gene copy number variation and stability. Monitoring changes in which Bacillus cells adapt to provide a representation of the way in which Bacillus cells adapt to changes in culture conditions, in which Bacillus cells adapt to changes in culture conditions, or environmental stress or other physiological provocation. Extensive equals one gene or one open reading frame, since sequence information is available. This sequence represents a genomic sequence tip from winted Note: The sequence data for this patent did not form part of the printed Note: The sequence data for this patent did not form part of the printed Specification, but was obtained in electronic format directly from WIPO
 530
                          AAGCTITCCTTCTCGGACAAAAGCAGCTTTAAATCGCTGATGGCGTAAAGCTCTTCTACG 798
                                                                      .....cullus differential expression of several genes in first Bacillus cell relative to expression of same genes in one or more second Bacillus cells, by using substrate containing Bacillus genomic sequenced tag array
471 AACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCT
                                                     Differential gene expression; genomic sequenced tag; GST; altered culture condition; environmental stress; physiological provocation; ds.
                                                                                                                                                                                                                                                                                           Bacillus clausii genomic sequence tag (GST) #1670.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 11; SEQ ID NO 6118; 200pp; English.
                                                                                                                                                                                                            ABK78827 standard; DNA; 783 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (NOVO ) NOVOZYMES BIOTECH INC. (NOVO ) NOVOZYMES AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06-OCT-2000; 2000US-0680598.
27-MAR-2001; 2001US-279526P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            05-OCT-2001; 2001WO-US31437
                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Berka R, Clausen IG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2002-416684/44.
                                                                                                                                                                                                                                                                                                                                                                            Bacillus clausii.
                                                                                                                                                                                                                                                                                                                                                                                                        WO200229113-A2.
                                                                                                                                         C 737
                                                                                                               C 591
                                                                                                                                                                                                                                                                   13-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                11-APR-2002.
                                                                                                                                                                                                                                         ABK78827;
                            857
                                                                                                                                         737
                                                                                                               591
                                                                                                                                                                                                   ABK78827,
                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                          ò
                                                                                   셤
                                                                                                                                        g
                            ద
                                                                                                                å
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The invention describes a method of monitoring differential expression of genes in a first Bacillus cell relative to expression of the genes in other Bacillus cells, comprising hybridising labelled nucleic acid probes isolated from Bacillus cells to a substrate containing array of Bacillus
                                                                                                                                                              413
                                                                                                                                                                                                                 631 TICCCAAGGGGGCATAAATAACCAGITACTICGTCTTCAACAACTICCGGGATGCCACCA 572
                                                                                                                                                                                                                                                                    414 GICICACIGGCGAIAACGGGCACGCCGGAGACIGACGCIICAGCCAGIACCAIACCAAAC 473
                                                                                                                                                                                                                                                                                                                       571 ATTITICICGCGATCACAGGTACCCGCATGCCATCGCTTCAAGCGCCACTAAACCAAAG 512
                                                                                                                                                                                                                                                                                                                                                                             474 GCTTCATTTTCCGAAGGCATGACCACCACCACTGGCAATCCGGTAGACGCTGGG 533
                                                                                                                                                                                                                                                                                                                                                                                                                     451 TITIGGIIGCCIAGCAIAAGGACAICGIIIGICAAGCCGIITICTICCACAAACIGCCIC 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Monitoring differential expression of several genes in first Bacillus cell relative to expression of same genes in one or more second Bacillus cells, by using substrate containing Bacillus genomic sequenced tag array
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         354 TCCCCCACGGGTAACAGCGTCCCTGTCATTCTTCTGAATGACATCAGGGATCCCGCCC
                                                                                                           Gaps
                                                                                                        ö
                                                   Length 783;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GST;
                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Differential gene expression; genomic sequenced tag; altered culture condition; environmental stress; physiological provocation; ds.
Sequence 783 BP; 225 A; 149 C; 199 G; 208 T; 2 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacillus clausii genomic sequence tag (GST) #1663.
                                                   Score 48.6; DB 24;

•Pred. No. 3.8e-05;

0; Mismatches 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 11; SEQ ID NO 6111; 200pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABK78820/c
ID ABK78820 standard; DNA; 783 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (NOVO ) NOVOZYMES BIOTECH INC. (NOVO ) NOVOZYMES AS.
                                                        4.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-OCT-2000; 2000US-0680598.
27-MAR-2001; 2001US-279526P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                05-OCT-2001; 2001WO-US31437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                        Query Match
Best Local Similarity 49.8'
Matches 123; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R, Clausen IG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2002-416684/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    594 AGACGTG 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          391 GCAATIG 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacillus clausii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200229113-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-APR-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABK78820;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Berka
```

_

```
genomic sequenced tags (GST), examining the array, and determining relative gene expression by an observed hybridisation reporter signal of a spot in the array. The method is useful for measuring the expression of genes in a first Bacillus cell relative to expression of the same genes in one or more second Bacillus cells. The method is useful for monitoring energy spaces from a Bacillus cell, discovering new genes, identifying possible functions of unknown open reading frames and monitoring gene copy number variation and stability. Monitoring changes in expression of genes may be used to provide a representation of the way in which Bacillus cells adapt to changes in culture conditions, and which Bacillus cells adapt to changes in culture conditions, convironmental stress or other physiological provocation. Extensive equals one gene or one open reading frame, since sequence information is available. This sequence represents a genomic sequence information is available. This sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      354 TCCCCCACGGGTAACAGCGTCCCTGTCACTTCTTCTGAATGACATCAGGGATCCCGCCC 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            633 TICCCAAGGGGGCAIAAAIAACCAGITACTICGICTICAACAACIICCGGGAIGCCACCA 574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   414 GTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGTTCAGCCAGTACCATACCAAAC 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         573 ATTTTGTCGCGATCACAGGTACCCGCATGCCATCGCTTCAAGCGCCACTAAACCAAAG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Monitoring differential expression of several genes in first Bacillus cell relative to expression of same genes in one or more second
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 46.2; DB 24; Length 783;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Differential gene expression; genomic sequenced tag; GST; altered culture condition; environmental stress; physiological provocation; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 53; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacillus licheniformis genomic sequence tag (GST) #1771.
                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 783 BP; 224 A; 150 C; 204 G; 203 T; 2 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 0.00024;
0; Mismatches 53
                                                                                                                                                                                                                                                                                                                                                           ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bb.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (NOVO ) NOVOZYMES BIOTECH INC. (NOVO ) NOVOZYMES AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                    3.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABK74480 standard; DNA; 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-OCT-2000; 2000US-0680598.
27-MAR-2001; 2001US-279526P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        35-OCT-2001; 2001WO-US31437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 59.5
Matches 78; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              474 GCTTCATTTTC 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   513 CTTTCTTTTTC 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sacillus licheniformis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3erka R, Clausen IG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2002-416684/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200229113-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11-APR-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABK74480;
                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABK74480/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
```

```
The invention describes a method of monitoring differential expression of genes in a first Bacillus cell relative to expression of the genes in other Bacillus cells, comprising hybridising labelled nucleic acid probes isolated from Bacillus cells to a substrate containing array of Bacillus second compared types (GST), examining the array, and determining genomic sequenced tags (GST), examining the array, and determining contains genomic sequenced tags (GST), examining the array, and determining contains of a spot in the array. The method is useful for monitoring can or more second Bacillus cells. The method is useful for monitoring global expression of several genes from a Bacillus cell, discovering new genes, identifying possible functions of unknown open reading frames and containing gene copy number variation and stability. Monitoring changes in expression of genes may be used to provide a representation of the way in which Bacillus cells adapt to changes in culture conditions, contained at stress or other physiological provocation. Extensive continuomental stress or other physiological provocation may array equals one gene or one open reading frame, since sequence information is contained of the invention. It is patent did not form part of the printed contained the expression, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1072 CATCTCCTTTAGGCGTCACCATACCGGTCACATTAGTTCAACGATTTCGGGAAGTCCCC 1013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    352 CATCCCCCACGGGTAACAGCGTCCCTGTCATTCTTCTGAATGACATCAGGGATCCCGC 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Micro array; gene; ds; differential expression; gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match 3.5%; Score 41.6; DB 24; Length 1227; Best Local Similarity 62.5%; Pred. No. 0.01; Matches 65; Conservative 0; Mismatches 39; Indels 0;
cells, by using substrate containing Bacillus genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eidhammer I, Jonassen I, Jensen HB, Lien T;
Lossius I, Eisen JA, Fraser CM, Durkin AS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1012 CTGCATCGCTGACGATAATAGGAAGTCCGGCTAATTGCGCTTCA 969.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  412 CCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCA 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1227 BP; 368 A; 236 C; 300 G; 323 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  :tp.wipo.int/pub/published_pct_sequences.
                                                          Claim 4; SEQ ID NO 1771; 200pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (UNIF-) UNIFOR STIFTELSEN UNIV BERGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        M. capsulatus gene #67 for DNA array.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1082/c
ABQ90082 standard; DNA; 1098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14-JAN-2002; 2002WO-NO00019.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12-JAN-2001; 2001NO-0000235.
12-JAN-2001; 2001NO-0000239.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Methylococcus capsulatus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    40200255655-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Birkeland NK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lillehaug JR,
Salzberg SL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (TIGR-) TIGR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-0CT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-JUL-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABQ90082;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABQ90082,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

ö

"encodes AAY54077"

'note=

```
W09962316-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-APR-1998;
22-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Stingele F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       09-DEC-1999.
                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                 CDS
                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                         CDS
              CDS
                                                                                                                      CDS
                                                                                                                                                                             CDS
                                                                                                                                                                                                                                CDS
ö
                                                                                                                                The invention relates to a novel DNA array giving a representation of a number of Methylococcus capsulatus genes. The method of the invention is useful for determination of the differential expression of the genes of M. capsulatus, and for studying gene expression on a genomic scale and in gene expression assays of M. capsulatus genes. The sequences shown in ABQ90016-ABQ91855 represent M. capsulatus genes for use in arrays of the
                                                                                                                                                                                                                                                                                                                                                                                334 CGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAA 393
                                                                                                                                                                                                                                                                                                                            CICIGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTG 333
                                                                                                                                                                                                                                                                                                                                                                                                  394 TGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTT 453
                                                                                                                                                                                                                                                                                                                                                                                                                                                               824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Exopolysaccharide, EPS; ESP enzyme; EPS1; EPS2; EPS3; EPS4; EPS5; EPS5; EPS6; EPS7; EPS8; EPS9; EPS10; EPS1. Lactobacillus helveticus strain LH59; activated D.galactose pyranose; saccharide; beta-glycosyltransferase; undecaprenyl-phosphate-glycosyl-1-phosphate-transferase;
                                        Novel DNA array useful for determining differential expression of Methylococcus capsulatus genes, comprises polynucleotides or oligonucleotides representative for a selective number of Methylococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alpha-glycosyltransferase; EPS polymerase; glycosyltransferase; phosphofuranose; transporter; food; fermented milk product; yoghurt; cheese; flavour stability; organoleptic property; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA encoding enzymes involved in exopolysaccharide biosynthesis.
                                                                                                                                                                                                                                                                                                    .;
0
                                                                                                                                                                                                                                                                       ; DB 24; Length 1098; 0.018;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           454 CAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCA 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     823 GCAGCAGIGAGAIGCCCAGGCCIICGCGCAGGGCCGGAIGIACCACCA 776
                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                            Sequence 1098 BP; 156 A; 390 C; 374 G; 178 T; 0 other;
                                                                                                                                                                                                                                                                       Score 40.8; DB 24;
Pred. No. 0.018;
); Mismatches 117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "encodes AAY54076"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "encodes AAY54075
                                                                                                            Claim 19; Page 81-82; 678pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAZ45259 standard; DNA; 14245 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'product= "EPS1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'product= "EPS2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product= "EPS3"
                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                          3.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ..2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note= "en(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27-MAR-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lactobacillus helveticus.
                                                                                                                                                                                                                                                                                       Best Local Similarity 48.7
Matches 111; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /*tag=
              WPI; 2002-557818/59
                                                                                   capsulatus genes
                                                                                                                                                                                                                        invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAZ45259;
                                                                                                                                                                                                                                                                                                                               274
                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAZ45259/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
```

g

ŏ 셤 ò

ç 셤 å

```
are prosure sayours curves enzymes are designated EPS1-EPS11. and are copolysaccharides (EPS). These enzymes are designated EPS1-EPS11. and are conded by open reading frames eps1-eps11. The enzymes are isolated from Lactobacillus helveticus strain LH59. The proteins are used in a method for the synthesis of EPS, which includes at least one step of forming a bond (alpha or beta-isomer) between C-1 (carrying the reducing aldehyde function, of an activated D-galactose pyranose), and a phosphate on a lipophilic or proteinaceous primer. Stepwise synthesis of EPS occurs with, in each step, addition of a new sugar unit, through its hemi-acetyl function, to an alcoholic hydroxyl of a second sugar unit, present at the end of a chain of sugar residues bonded to the primer. EPS1 has homology with an undecaprenyl-phosphate-glycosyl-1-phosphate-transferases; EPS5 and EPS6 have homology with a beta-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present sequence encodes enzymes involved in the biosynthesis of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P-PSDB; AAY54075; AAY54076, AAY54077, AAY54078, AAY54079, AAY54080,
AAY54081; AAY54082, AAY54083, AAY54084; AAY54085.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /hote-"encodes AAY54085; contains 1 stop codon at nucleotides 12867-12869"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       οţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   new recommonant enzymes for synthesis of exopolysaccharides, particularly in lactic acid bacteria, for improving properties fermented milk products
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "encodes AAY54083'
10250..11662
/*tag= j
                                                                                                                                                                                         "encodes AAY54079"
                                                                                                                                                                                                                                                                                                    /note= "encodes AAY54080°
7095..8258
                                                                                                                                                                                                                                                                                                                                                                                                             "encodes AAY54081'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note= "encodes AAY54082"
135..10253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note= "encodes AAY54084"
11664..13181
                                                                                 "encodes AAY54078'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 11; Page 110-117; 162pp; French.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Germond JE, Lamothe G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product- "EPS11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product- "EPS10"
                                                                                                                                                                                                                                                                                                                                                            rag= g
product= "EPS7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'product- "EPS8"
                                                                                                                                                            'product= "EPS5"
                                                                                                                                                                                                                                                                          'product= "EPS6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product= "EPS9"
                                                    "EPS4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98EP-0201311.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99WO-EP02841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98EP-0201310.
                                                                                                                                                                     prc.
/note=
~a .7090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (NEST ) SOC PROD NESTLE SA.
                                                                                                        .6095
                                                                                                                                                                                                                                                                                                                                                                                                                                          3283..9122
..5083
                                                                                                                                              Φ
                                                       'product-
                                                                                                                                                                                                                                                      *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag=
                                                                                                                                           /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2000-097267/08.
```

```
Stingele F,
                                                                                                                                                                                                                                                                                                                                                                                                                                               28-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                products
              CDS
                                                                    CDS
                                                                                                                          CDS
                                                                                                                                                                               CDS
                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                 CDS
     2822 CACTATTTTGTGCGACTCTTTTACCATCAAACTTATTTTTTACAATATTACTTTCAGTTT 2763
                                                                                                                                                                                                                       2762 TAACTAAAGAAGATCTCAAATCAGGTTGTTTAAATAGTTTATCGACTGCATCTGCTGCTT 2703
                                                                                                                                                                                                                                                                                                             2642 TAGCATCCACATTAGTAGCTACAATAGGCACTCCACAAGCCATATACTCTGGTAGAACTA 2583
                                                                                                                                  ö
                                                                                                                                                        285
                                                                                                                                                                                                                                                                                          465
glycosyltransferase; EPS7 has homlogy with an EPS polymerase; EPS8 is a glycosyltransferase; EPS9 catalyses the transfer of phosphofuranose onto the following repetitive unit; EPS10 transports the polysaccharides formed; and EPS11 is involved in the synthesis and export of formed polysaccharides. The EPS enzyme are used to improve properties of foods, particularly fermented milk products such as yoghurt and cheese, e.g. their organoleptic properties and flavour stability.
                                                                                                                                                      226 CAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATATCTTCTCTGGCGCTGG
                                                                                                                                                                                                  286 CTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAAATCGCGCAGTGCGCCGGTCCATG
                                                                                                                                                                                                                                            346 CAGACACACCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGA
                                                                                                                                                                                                                                                                                        TCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCA
                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 probiotic; foodstuff; organoleptic quality; flavour;
lactic acid bacteria; acidified milk product; yoghurt; cheese; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               eps operon; Lactobacillus helveticus LH59; enzyme; eps1; eps2; eps3; eps4; eps5; eps6; eps7; eps8; eps9; eps10; eps11; exopolysaccharide blosynthesis; EPS; intersugar bond; antitumour;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag= d
/product= "eps4"
/note= "encodes AAY43780; this CDS is specifcally
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note= "encodes AAY43777; this CDS is specifcally
  claimed (claim 11)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note- encodes AAV43778; this CDS is specifcally claimed (claim 11)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product= "eps3"
/note= "encodes AAY43779; this CDS is specifcally
claimed (claim 11)"
                                                                                                          Query Match
3.4%; Score 40.6; DB 21; Length 14245;
Best Local Similarity 46.3%; Pred. No. 0.093;
Matches 133; Conservative 0; Mismatches 154; Indels 0;
                                                                                                                                                                                                                                                                                                                                                 TACCAAACGCTTCATTTTCCGAAGGCATGACCACCACCACTGGCAATC 512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nucleotide sequence of the eps operon of L. helveticus LH59
                                                                                      Sequence 14245 BP; 5095 A; 1755 C; 2545 G; 4850 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'product= "eps2"
                                                                                                                                                                                                                                                                                                                                                                                                             AA230356 standard; DNA; 14245 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'product= "eps1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1052..1729
/*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .733..2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2851..3942
                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3929..5083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lactobacillus helveticus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                       11-FEB-2000
                                                                                                                                                                                                                                                                                        406
                                                                                                                                                                                                                                                                                                                                    466
                                                                                                                                                                                                                                                                                                                                                                                                                                   AAZ30356;
                                                                                                                                                                                                                                                                                                                                                                                                  AAZ30356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                         RESULT
  88888888
                                                                                                                                                                           음
                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                             음
                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                         å
                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                       셤
```

```
The present sequence represents the eps operon of Lactobacillus helveticus LH59. The operon contains 11 open reading frames, and encodes enzymes (eps1. eps2, eps1, eps4, eps5, eps6, eps6, eps6, eps8, eps8, and eps11) that are involved in the biosynthesis of exopolysaccharides (EPS). The enzymes catalyse the formation of specific intersugar bonds. The enzymes catalyse the formation of specific intersugar bonds forming a bond (in alpha or beta anomeric form) between Cl, carrying the reducing aldehyde group of an activated D-Galp (galactose in pyranose form), and a phosphate group on a lipophilic or proteinaceous primer. The enzymes are used to produce EPS that have antitumor or problotic properties or are used in foodstuffs to improve organoleptic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ecombinant enzymes for biosynthesis of exopolysaccharides having antitumor or probiotic properties or useful in fermented milk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "encodes AAY43787; the sequence contains 1 stop codon at nucleotides 12867-12869; this CDS is specifically claimed (claim 11)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P-PSDB; AAY43777, AAY43778, AAY43779, AAY43780, AAY43781, AAY43782,
AAY43783, AAY43784, AAX43785, AAY43786, AAY43787.
                                                                                                                    eucodes AAV43781; this CDS is specifically claimed (claim 11)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note= "encodes AAV43784; this CDS is specifically claimed (claim 11)" 9135..10253
                                                                                                                                                                                                                                                                   /note= "encodes AAV43782; this CDS is specifcally
                                                                                                                                                                                                                                                                                                                                                                                              encoues AAV43783; this CDS is specifically claimed (claim 11)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'note= "encodes AAY43785; this CDS is specifcally
    claimed (claim 11)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note= "encodes AAY43786; this CDS is specifcally claimed (claim 11)"
claimed (claim 11)"..6095
                                                                                                                                      /note= "encodes AAY43781;
                                                                                                                                                                                                                                                                                                                                                                                                                     /note= "encodes AAY43783;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 11; Page 111-118; 163pp; French.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Germond JE, Lamothe G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         eps11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product= "eps10"
                                                                                    *tag= e
product= "eps5"
                                                                                                                                                                                                                                                     'product= "eps6"
                                                                                                                                                                                                                                                                                                                                                                   *tag= g
product= "eps7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product= "eps8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'product= "eps9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0250..11662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11664..13181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99WO-EP03011,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98EP-0201311.
98EP-0201312.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98EP-0201310.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (NEST ) SOC PROD NESTLE SA.
                                                                                                                                                                                                                                                                                                                                   ..8258
                                                                                                                                                                                             5098..7090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3283..9122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product=
/note= "en
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New recombinant enzymes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *tad=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2000-013255/01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22-APR-1998;
22-APR-1998;
22-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                W09954475-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22-APR-1999;
```

```
2703
                                                                                                                                                            ö
                                                                                                                                                                                                                                       2822 CACTATITIGIGGGACTCTITIACCATCAACTTATITITIACAATATTACTTICAGTTT 2763
                                                                                                                                                                                                                                                                                                                                                                               2642 TAGGATCCACATTAGTAGCTACAATAGGCACTCCACAAGCCATATACTCTGGTAGAACTA 2583
                                                                                                                                                                                                                                                                            345
                                                                                                                                                                                                                                                                                                                                                          405
                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCA 465
                                                                                                                                                                                                 226 CAAIGAICIGIGCCGIICIGIIAAIAICAAACCGGIACICAAIAICIICICIGGCGCIGG
                                                                                                                                                                                                                                                                              286 CTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAAATCGCGCAGTGCGCCCGGTCCATG
                                                                                                                                                                                                                                                                                                                   2762 TAACTAAAGAAGATCTCAAATCAGGTTGTTTAAATAGTTTATCGACTGCATCTGCTGTT
                                                                                                                                                                                                                                                                                                                                                            346 CAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGA
qualities and flavour. When expressed by lactic acid bacteria, EPS imple free-flowing character and/or a smooth, creamy texture to acidified milk products (yoghurt or cheese).
                                                                                                                                                              Gaps
                                                                                                                                                            ö
                                                                                                                   Length 14245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2582 AACCAAGCCTTCCCAACGAGATAGTAGCATCCCCACATCCATAATC 2536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 466 TACCAAACGCTTCATTTTCCGAAGGCATGACCACCACCACTGGCAATC 512
                                                                              Sequence 14245 BP; 5095 A; 1755 C; 2545 G; 4850 T; 0 other;
                                                                                                                                                            Indels
                                                                                                                 Score 40.6; DB 21;
Pred. No. 0.093;
0; Mismatches 154;
                                                                                                                     3.48;
                                                                                                                                          Local Similarity 46.3 tes 133; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                       406
                                                                                                                       Query Match
                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
      ឧឧឧ
                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                            ö
```

ö

```
olated nucleic acid from bacteriophage RM 378 encoding enzymes useful recombinant DNA technology -
                                                                                    Genome; thermophilic enzyme; washing powder; bleaching; ds
                                                                                                                                                                                                         Fridjonsson OH,
                                                                   R. marinus bacteriophage RM387 genomic DNA.
                                                                                                                                                                                                          Hjorleifsdottir S, Hreggvidsson GO,
                 AAF25833 standard; DNA; 130480 BP
                                                                                                                                                                        99US-0137120
                                                                                                                                                                                         (DECO-) DECODE GENETICS EHF.
                                                                                                                                                       02-JUN-2000; 2000WO-IB00893
                                                   (first entry)
                                                                                                      Rhodothermus marinus.
                                                                                                                                                                                                                                   WPI; 2001-061727/07.
                                                                                                                                                                                                                 Kristjansson JK;
                                                                                                                      WO200075335-A2.
                                                                                                                                                                        02-JUN-1999;
                                                    12-APR-2001
                                                                                                                                       14-DEC-2000
                                  AAF25833;
                                                                                                                                                                                                                                                     Isolated
RESULT 13
AAF25833/
```

Aevarsson A;

This invention describes a novel isolated nucleic molecule (I) comprising the genome of bacteriophage RM 378. The invention also describes (1) an isolated nucleic acid which encodes a polypeptide obtainable from bacteriophage RM 378 or its active derivative or fragment; (2) an isolated bacteriophage RM 378 (II); (3) a DNA construct (III) comprising operatively linked to a regulatory sequence; (4) a host cell comprising (III); and (5) an isolated polypeptide (IV) obtainable from (II), its active derivative or fragment. Bacteriophage RM 378 is useful for

Claim 3; Fig 1A-1Q2; 138pp; English.

```
producing thermophilic enzymes useful in DNA research and commercial settings (e.g. proteases and lipases used in washing powder, hydrolytic enzymes used in bleaching). The isolated nucleic acid molecules and consequenced to record a set of the backers are useful in the manufacture of encoded polypeptide, as probes for isolating homologous sequences (e.g. from other bacteriophage secretise), as well as for detecting the presence of the bacteriophage of a culture of host cells. The polypeptides can be used as a molecular weight marker on SDS-PAGE gels or on molecular sieve gel filtration columns. Because the host organism of the RM378 bacteriophage is a charmophile, the enzymes and proteins of the RM378 bacteriophage is a significantly more thermostable than those of other (e.g. mesophilic) bacteriophages, such as the T4 bacteriophage of Escherichia coll. The enhanced stability of the enzymes and proteins of RM378 bacteriophage callows their use under temperature conditions which would be prohibitive for other enzymes, thus increasing the range of conditions which can be complyed not only in DNA research but also in commercial settings.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to evaluating strain variation within and between different populations of the tuberculosis bacterial pathogen. Mycobacterium tuberculosis or related Mycobacterium by determining the nucleotide sequence of the first strain at positions in the complete sequence of the tat correspond to positions that differ in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Evaluating strain variation of Mycobacterium tuberculosis, comprises determining the nucleotide sequence of the strain at positions in the genome corresponding to positions where M. tuberculosis strains CDC 1551 and H37Rv differ -
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mycobacterium tuberculosis; strain H37Rv; strain CDC 1551; genome; variation; epidemiology; patient treatment; epidemic monitoring; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 130480 BP; 37304 A; 27752 C; 27687 G; 37737 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               458 CAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGC 508
                                                                                                                                                                                                                                                                                                                                                                                                            DB 22; Length 130480;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mycobacterium tuberculosis strain H37Rv genome SEQ ID NO 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   44; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 4; SEQ ID NO 2; 3pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Venter JC;
                                                                                                                                                                                                                                                                                                                                                                                                                             0.34;
                                                                                                                                                                                                                                                                                                                                                                                                          3.4%; Score 40.6; Di
Local Similarity 60.4%; Pred. No. 0.34
Les 67; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Fleischmann RD, White OR, Fraser CM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAI99683 standard; DNA; 4403765 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0103840.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98US-0103840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mycobacterium tuberculosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GENO-) INST GENOMIC RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2001-647261/74.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US6294328-B1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-SEP-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA199683;
                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 14
AAI99683/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
             8555555555555555555X&
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
```

```
Forterre P,
Querellou J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FR2792651-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                            AAH41227;
                                                                                                                                                                                                                                                                                                                                                                                               RESULT 16
                                                                                                                                                                                                                                                                                                                                                                                                         AAH41227
   8888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                      à
                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                 TCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATC 512
                                                                                                                                                                                  333 GCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGA 392
                                                                                                                                                                                                                                  393 ATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCT 452
                                                                                                          Sequence 4403765 BP; 757105 A; 1447799 C; 1441301 G; 757371 T; 189 other;
                                                monitoring.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from USPTO at seqdata.uspto.gov/sequence.html?DocID=6294328B1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The invention relates to evaluating strain variation within and between different populations of the tuberculosis bacterial pathogen, Mycobacterium tuberculosis or related Mycobacterium by determining the nucleotide sequence of the first strain at positions in the complete sequence of the farst strain at bositions that differ in the
nucleotide sequences of M. tuberculosis strains CDC 1551 (AA199683) and H37Rv (AA199682). The method is useful for evaluating strain variation M. tuberculosis and has valuable application in the fields of tuberculosis genetics, epidemiology, patient treatment and epidemic
                                                                                                                                                                                                                                               577929 ACGCGAGGCAGCCGCCCCACGCGGGCCACCGGTGTGCCGCACGCTTGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Evaluating strain variation of Mycobacterium tuberculosis, comprises determining the nucleotide sequence of the strain at positions in the genome corresponding to positions where M. tuberculosis strains CDC 1551 and H37Rv differ
                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mycobacterium tuberculosis; strain H37Rv; strain CDC 1551; genome; variation; epidemiology; patient treatment; epidemic monitoring; ds
                                                                                                                                    DB 22; Length 4403765;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mycobacterium tuberculosis strain H37Rv genome SEQ ID NO 1.
                                                                                                                                                          92; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 3; SEQ ID NO 1; 3pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Venter JC;
                                                                                                                                  3.4%; Score 39.8; DE 50.8%; Pred. No. 4.8; tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fraser CM,
                                                                                                                                                                                                                                                                                                                                                                                                                  AA199682 standard; DNA; 4411529 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98US-0103840.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98US-0103840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fleischmann RD, White OR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                           95; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GENO-) INST GENOMIC RES
                                                                                                                                                                                                                                                                                                                                                       577809 CGAAACA 577803
                                                                                                                                                                                                                                                                                                                                 513 CGGTAGA 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2001-647261/74.
                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JS6294328-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24 - JUN - 1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  L5-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25-SEP-2001
                                                                                                                                                                                                                                                                                 453
                                                                                                                                                                                                                                                                                                                                                                                                                                        AA199682;
                                                                                                                                    Ouery Match
                                                                                                                                                 Best Local
                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                            RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                         AAI99682/
                                                                                                                                                                                                                                                                                                                                                                                                                              888888888
                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                   à
```

```
ö
nucleotide sequences of M. tuberculosis strains CDC 1551 (AA199683) and H37Rv (AA199682). The method is useful for evaluating strain variation of M. tuberculosis and has valuable application in the fields of tuberculosis genetics, epidemiology, patient treatment and epidemic monitoring. Wote: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from USPTO at seqdata.uspto.gov/sequence.html?bocID-6294328B1.
                                                                                                                                                                                                                                                                                                                                                                                                 333 GCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGA 392
                                                                                                                                                                                                                                      Sequence 4411529 BP; 758565 A; 1449983 C; 1444602 G; 758379 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   393 ATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            453 TCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATC
                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  οĘ
                                                                                                                                                                                                                                                                                               DB 22; Length 4411529;
                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New nucleotide sequences isolated from Pyrococcus abyssi encode proteins useful in industry -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lecompte 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualiflers
1.49980
-/*tag* a /note- "This sequence overlaps with the 3'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ds.
                                                                                                                                                                                                                                                                                          Score 39.8; DB 22; Length
Pred. No. 4.8;
0; Mismatches 92; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hyperthermophilic archaeon; hyperthermophilic protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Thierry JC, Prieur D, Dietrich J,
Weissenbach J, Saurin W, Heilig R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pyrococcus abyssi genomic fragment #6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (CNRS ) CNRS CENT NAT RECH SCI.
(IFRE-) IFREMER INST FR RECH EXPL MER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 1; Page 593-665; 1657pp; French
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAH41227 standard; DNA; 265118 BP
                                                                                                                                                                                                                                                                                            3.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99FR-0005034.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99FR-0005034.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-OCT-2001 (first entry)
                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 50.8°
Matches 95; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAH41226"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 576367 CGAAACA 576361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                513 CGGTAGA 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-126236/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pyrococcus abyssi.
```

```
misc_difference
                                                                                                                                                                                           misc_difference
                                                                                                                                                                                                                                           misc_difference
                                                                                                                                                                                                                                                                                            misc_difference
                                                                                                                                                                                                                                                                                                                                               misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_difference
                                     misc_difference
                                                                                                                                        misc_difference
        57171 TATCCCACCGACTTTCCTTCCCAAGGCTGGGACAGAAGAAGAAGTTCGCCTCAAGGATTAC 57230
                                                                                                                                                                                                              57170
                                                                                                                                                                       ö
abyssi and P. abyssi proteins (see AAB96053-AAB96842). P. abyssi is a hyperthermophilic archaeon, which is isolated from deep-sea hydrothermal vents. The present sequence is a fragment of the genomic sequence of P. abyssi. The 5' end of this sequence overlaps with the 3' end of AAH41226. The proteins of the present invention have various potential industrial uses, since the proteins are stable at very high temperatures, some up to when must are centigrade.
                                                                                                                                                                                         403
                                                                                                                                                                                                                                 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ^{\mathsf{the}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the
                                                                                                                                                                                                       344 TGCAGACACACCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGG
                                                                                                                                                                                                                                  404 GATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTAC
                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag= a
/note= "this nucleotide is represented as a * in the
specification, and is included to maintain th
base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                        as WO200065062, which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This nucleotide is represented as a * in the specification, and is included to maintain base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this nucleotide is represented as a * in th specification, and is included to maintain base numbering given in the specification"
                                                                                                                                                 Length 265118;
                                                                                                                              Sequence 265118 BP; 75226 A; 61302 C; 54005 G; 74585 T; 0 other;
                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                     s in the same patent family as WO20006506 sequences as shown in AAB99132-AAB99143,
                                                                                                                                                                                                                                                                          CATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCA 509
                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                               Stealth virus; detection; diagnosis; infection; ss
                                                                                                                                                  Score 39.6; DB 22;
                                                                                                                                                                      79;
                                                                                                                                                                                                                                                                                                                                                                                                            Stealth virus nucleic acid clone, SEQ ID NO: 24
                                                                                                                                                            1,1;
                                                                                                                                                                       Mismatches
                                                                                                                                                              Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                        patent is in the same
                                                                                                                                                                     ö
                                                                                                            AAH75903-AAH75920 and AAG66436.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           b
"this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "this
                                                                                                                                                   3.4%;
                                                                                                                                                                                                                                                                                                                                              AAX84332 standard; DNA; 5059
                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ð
                                                                                                                                                            Local Similarity 52.4 nes 87; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_difference 3638 /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3631
                                                                                                   additional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Stealth virus
                                                                                                                                                                                                                                                                                                                                                                                        08-SEP-1999
                                                                                        Note: This
                                                                                                                                                                                                                                                                                                                                                                   AAX84332;
                                                                                                                                                                                                                                                                          464
                                                                                                                                                   Query Match
                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                       AAX84332
                                                                                                                                                                                                                                                                                                                             RESULT
        888888888888888
                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                      음
                                                                                                                                                                                                                                                                          å
                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                     ð
```

```
* in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the
the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the
the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
the
                                                                                   the
the
                                                                                                                                                                                                                                                                                                                                                                                                                                                     k "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                            fuls nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
"this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                    this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                 "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       represented as a * in the is included to maintain the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s
"this nucleotide is represented as a * in the specification, and is included to maintain base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this nucleotide is represented as a * in the specification, and is included to maintain base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
"this nucleotide is represented as a * in th
specification, and is included to maintain
base numbering given in the specification"
                                                                                           this nucleotide is represented as a * in the specification, and is included to maintain base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    represented as a * in the is included to maintain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  p this nucleotide is represented as a * in to specification, and is included to maintain base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     o "this nucleotide is represented as a * in the specification, and is included to maintain base numbering given in the specification"
                                                                           g
"this nucleotide
                                                                                                                                                                                        "this nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          r
this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag=
/note=
                                                                                                                                                                        /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                              /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note=
   /note=
                                                                                                                                                                                                                                                                                     /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /*tag=
                                                                                           /note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag=
                                                                           /*tag=
                                                                                                                                                                                                                                                                   /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_difference 3740
                                                                                                                                                      3642
                                                                                                                                                                                                                                                                                                                                          3659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_difference 3733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_difference 3747
                                                                                                                                                                                                                                               3657
                                                                                                                                                                                                                                                                                                                                                                                                                                     3681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_difference 3708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_difference 3720
```

ö

Gaps

868

988

Thu

```
1804 VRSMTHWATCHNGSNCSANADDTNACMARSNCDBMADWTHTHGNBANKNTRSRSCMVNTH 1863
                                                                                                                                                                                                                                                                                                                                       1564 SSSHWNNTABTHHCMVRINSWHCHMATCHDTVRMRTHSTATHVRSCNSARNDCATDBYND 1623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                        809 GGGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATCAGACGCCTCAGTCCTGCTATATTACTGTCATGGCCACTATGGCAGATGACCAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                     CGTICTGGTCTTACGGGTGATGTAGGTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCA
                                                                                                                                                                                                                                                                                                                                                                       869 ATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAA
                                                                                                                                          "this nucleotide is represented as a * in the
specification, and is included to maintain the
base numbering given in the specification"
                                                                this nucleotide is represented as a * in the specification, and is included to maintain base numbering given in the specification*
                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ds
                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4yperthermophilic archaeon; hyperthermophilic protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note-
AAH41225*
300001.349980
/*tag= b
/*te= This sequence overlaps with th
                                                                                                                                                                                                                                         3.3%; Score 39.2; DB 20;
1larity 14.5%; Pred. No. 0.15;
Conservative 138; Mismatches 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag= a
/note= "This sequence overlaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTGAAAGGAATAAAAGTGACATCATGCCCTC 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SCASSANVNGRATRHMGYWASSNWTHSCMYTH 1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pyrococcus abyssi genomic fragment #5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA; 349980
                                                 aj
"this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99FR-0005034.
                                                                                                                                                                                                             al
                                                                                                                               аķ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1..49980
                                                                                                                                 /*tag=
/note=
                                                                   /note=
                                                                                                                                                                                                              /*tag=
                                                                                                                misc_difference 3860
                                    misc_difference 3857
                                                                                                                                                                                              misc_difference 3863
                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pyrococcus abyssi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FR2792651-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27-0CT-2000
                                                                                                                                                                                                                                                                          48;
                                                                                                                                                                                                                                                                                                                                                                                                                                  929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .226/c
AAH41226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAH41226;
                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                               'this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                       /*tag= w
/note= "this nucleotide is represented as a * in the
specification, and is included to maintain the
base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                         "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                       this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                 "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "this nucleotide is represented as a * in the
specification, and is included to maintain the
base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "this nucleotide is represented as a * in the
specification, and is included to maintain the
base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "this nucleotide is represented as a * in the
                                                                                                                                                                                                                                                         x
this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ae
"this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ag
this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ah
"this
                                                                                                                                                                                                                                                                                                                                                                                                                                  "this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ap
                                                                                                                                                                                                                                                                                                                   3792
/*tag=
/note= "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag-
                  /*tag=
/note=
                                                                                              /*tag-
/note-
                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag-
/note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3824
/*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag-
/note-
                                                                                                                                                                                                                                                        /*tag=
                                                                                                                                                                                                                                                                        /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3818
                                                                                                                                                                                                                                                                                                                                                                                                   3799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3841
misc_difference 3750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_difference 3853
                                                                               misc_difference 3751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_difference
                                                                                                                                                                                                                                         misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_difference
                                                                                                                                                                                                                                                                                                                     misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                   misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_difference
                                                                                                                                                           misc_difference
```

ot

οŧ

```
The invention relates to a novel DNA array giving a representation of a number of Methylococcus capsulatus genes. The method of the invention is useful for determination of the differential expression of the genes of M. capsulatus, and for studying gene expression on a genomic scale and in gene expression assays of M. capsulatus genes. The sequences shown in ABQ90016-ABQ91855 represent M. capsulatus genes for use in arrays of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   325 CGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACAT 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ceaccadedacredeceargerrecacgredecegecegecaccageagaccecarrere 899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cerceccaseasarresesrarsececesaceseseresecaecesacecases 839
                                                                                                                                                       Methylococcus capsulatus genes, comprises polynucleotides or oligonucleotides representative for a selective number of Methylococcus capsulatus genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               385 TCTTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACACAC
                                                                                                                                      DNA array useful for determining differential expression of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 38.4; DB 24; Length 1110;
Pred. No. 0.11;
0; Mismatches 91; Indels 0;
               HB, Lien T
Durkin AS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bacillus licheniformis genomic sequence tag (GST) #1730.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1110 BP; 160 A; 344 C; 403 G; 203 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Differential gene expression; genomic sequenced tag; altered culture condition; environmental stress; physiological provocation; ds.
                 Eidhammer I, Jonassen I, Jensen
Lossius I, Eisen JA, Fraser CM,
                                                                                                                                                                                                                                              Claim 19; Page 135-136; 678pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABK74439 standard; DNA; 1108 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (NOVO ) NOVOZYMES BIOTECH INC. (NOVO ) NOVOZYMES AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          06-OCT-2000; 2000US-0680598.
27-MAR-2001; 2001US-279526P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match 3.3%;
Best Local Similarity 50.5%;
Matches 93; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-OCT-2001; 2001WO-US31437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacillus licheniformis
                                                                                                 WPI; 2002-557818/59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           505 TGGC 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGC 775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200229113-A2
                 Birkeland NK,
Lillehaug JR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13-AUG-2002
                                         Lillehaug JR
Salzberg SL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-APR-2002.
                                                                                                                                                                                                                                                                                                                                                                                                            invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABK74439;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    838
                                                                                                                                          Novel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  224168 GCTTCGGCCAATCTAAATGGATCTTTAGGTGGAACAAGTATCCCAGTCTTTCCATTCTCG 224109
                                                                                                                                                                                                                                                                                                                                                  abyssi and P. abyssi proteins (see AAB96053-AAB96842). P. abyssi is a hyperthermophilic archaeon, which is isolated from deep sea hydrothermal vents. The present sequence is a fragment of the genomic sequence of P. abyssi. The 5' end of this sequence overlaps with the 3' end of AAH41225 and the 3' end of this sequence overlaps with the 5' end of AAH41225 proteins of the present invention have various potential industrial uses since the proteins are stable at very high temperatures, some up to 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            333 GCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGA 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          393 ATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 degrees centigrade.
Note: This patent is in the same patent family as WO200065062, which
contains additional sequences as shown in AAB99132-AAB99143,
AAH75903-AAH75920 and AAG66436.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                 The present invention relates to the genomic sequence of Pyrococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 349980 BP; 98084 A; 80447 C; 77665 G; 93784 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 349980;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Micro array; gene; ds; differential expression; gene expression
                                                                                                                                                                                                                           New nucleotide sequences isolated from Pyrococcus abyssi encode proteins useful in industry -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                         ö
                                                                                                                           Lecompte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                       Thierry JC, Prieur D, Dietrich J, Weissenbach J, Saurin W, Heilig R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 39.2; DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              224048 TCTATCAGAACCATTCCAAACCCTCTT 224021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 1.7;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             453 TCAGCCAGIACCATACCAAACGCTTCAT 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 M. capsulatus gene #174 for DNA array.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (UNIF-) UNIFOB STIFTELSEN UNIV BERGEN.
(TIGR-) TIGR.
                                                            (CNRS ) CNRS CENT NAT RECH SCI;
(IFRE-) IFREMER INST FR RECH EXPL MER
                                                                                                                                                                                                                                                                                       Claim 1; Page 511-606; 1657pp; French
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA; 1110 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14-JAN-2002; 2002WO-NO00019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12-JAN-2001; 2001NO-0000235
12-JAN-2001; 2001NO-0000239
                 99FR-0005034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Methylococcus capsulatus.
                                                                                                                                                                                      WPI; 2001-126236/14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABQ90189 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200255655-A2.
                                                                                                                       Forterre P,
Querellou J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-JUL-2002.
                     21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABQ90189;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 19
ABQ90189/
```

윤

å

셤

å

용

ð

Gaps

```
20-FEB-2001; 2001WO-US05171
                                         16-MAR-2000
25-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAD22921;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                             The invention describes a method of monitoring differential expression of genes in a first Bacillus cell relative to expression of the genes in coher Bacillus cells, comprising hybridising labelled nucleic acid probes isolated from Bacillus cells to a substrate containing array of Bacillus close decorated from Bacillus cells to a substrate containing array of Bacillus cells to a substrate containing array of Bacillus cells to a substrate containing the expression of relative gene expression by an observed hybridisation reporter signal of a spot in the array. The method is useful for measuring the expression of genes in a first Bacillus cells. The method is useful for monitoring new genes, identifying possible functions of unknown open reading frames and monitoring gene copy number variation and stability. Monitoring changes in expression of genes may be used to provide a representation of the way in which Bacillus cells adapt to changes in culture conditions, environmental stress or other physiological provocation. Extensive equals one gene or one open reading frame, since sequence information is canallable. This sequence represents a genomic sequence tag (GST) used in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACCACTG 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Treretaraaaretresegeegeegegageereecegaraacageegeeereegageg 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 866 AGCGCTTCAAGGGCGGAATTTCCGAAGGTTTCCGTCGGAGAAGGAAAAGACGAACAAATCT 807
                                                                                                                                                                                                                                                                                                                                                                                                                 Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cytostatic; carcinogen; pharmacodyanamic marker; gene; ss.
                                                      Monitoring differential expression of several genes in first Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                    cell relative to expression of same genes in one or more second
Bacillus cells, by using substrate containing Bacillus genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 37; DB 24; Length 1108;
Pred. No. 0.33;
0; Mismatches 60; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1108 BP; 304 A; 290 C; 246 G; 268 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human prostate expression marker cDNA 47255.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                         Claim 4; SEQ ID NO 1730; 200pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABV47264 standard; cDNA; 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.1%;
54.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 54....
And 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            507 GCAATCCGGTAGA 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | || || GAGCTCGCATAGA 794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human; prostate cancer;
pharmacogenomic marker;
                                                                                              sequenced tag array
                           WPI; 2002-416684/44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200160860-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-SEP-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              domo saptens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABV47264;
Berka R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ABV47264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to an isolated nucleic acid molecule (I) comprising a nucleotide sequence given in Tables 1-9 (ABV00010-ABV62213) of the specification or its complement. (I) is useful for:
(a) assessing whether a patient is afflicted with prostate cancer;
(b) monitoring the progression of prostate cancer in a patient;
(c) assessing the efficacy of a test compound to inhibit prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  317 CAATICGCCCTAIAGIGAGICGIAITACGCGCGCTCACIGGCCGTCGTIIIACAACGICG 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 AAAGTAGGCCTGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATG 120

(e) selecting a composition for inhibiting prostate cancer in a patient;
(f) assessing the prostate cell carcinogenic potential of a compound;
(g) determining whether prostate cancer has metastasized in a patient;
(h) assessing the aggressiveness or indolence of prostate cancer in a

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; Zalphall; cytokine receptor; immunosuppressive; cytostatic; inflammatory disorder; haemostatic; cell proliferation; immune disorder; autoimmune disease; rheumatoid arthritis; multiple sclerosis; cancer; myasthenia gravis; systemic lupus erythematosus; SLE; diabetes; asthma; ulcerative colitis; inflammatory bowel disease; Crohn's disease; sepsis;
                                                                                                                                                                                                                                                                                                                                                                                                               Novel isolated nucleic acid molecule associated with cancerous state of prostate cells and correlating with presence of prostate cancer, useful for detecting presence of prostate cancer -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cancer in a patient;
(d) assessing the efficacy of a therapy for inhibiting prostate cancer
in a patient;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 CTGCAGGAGATGGAAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (I) is also useful as a pharmacodyanamic or pharmacogenomic marker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human soluble Zalphall cytokine receptor cDNA degenerate sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 23; Length 386;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 386 BP; 110 A; 97 C; 93 G; 85 T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 0.24;
0; Mismatches
                                                                                                                                                                                                                          (MILL-) MILLENNIUM PREDICTIVE MEDICINE INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.1%; Score 36.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 1; Page 9300; 11750pp; English
                                                                                                                                                                                                                                                                                         Monahan JE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAD22921 standard; cDNA; 654
                                                                                          2000US-211314P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56.18;
2000US-183319P
                                                                                                                                                      2000US-255281P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26-FEB-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ouery Match
Best Local Similarity 56.1%
Matches 69; Conservative
                                                                                                                                                                                                                                                                                      Schlegel R, Endege WO,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                viral infection; ss.
                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-662795/76.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 TGA 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGA 379
                                                                                                                                                          13-DEC-2000;
17-FEB-2000;
                                                                                       09-JUN-2000;
```

Homo sapiens.

18-OCT-2001

Sprecher CA,

```
GICCIGCIATATIACTGICATGGCCACTATGGCAGATGACCAGATCAGGITTAAATTCCC 1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1063 CGATAATCCGTCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAA 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               883 GIGAGAIAGGCACAACAAIGAAAICACACAGAIAAIICAGGGAAAACGIICIGGICIIAC 942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   943 GGGTGATGTAGGTTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             177 RGAYGARGCNACNWSNTGYWSNTHNCAYMGNWSNGCNCAYAAYGCNACNCAYGCNACNCAYCONACNTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Novel nucleic acid encoding zalphail polypeptide, useful for treating e.g. viral infection or tumors, and for identifying ligands that stimulate cell proliferation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present sequence is that of a degenerate DNA sequence that encompasses all DNAs encoding zalphall (see AAY79312), a novel human class I cytokine receptor that may be involved in an apoptotic cellular pathway, or is a cell-cell signalling molecule, growth factor receptor, or extracellular matrix associated protein with growth factor hormone activity. The degenerate sequence serves as a template for optimizing expression of polynucleotides in various cell types and hosts. The invention provides zalphall antipolises, polynucleotides (see also AAZ49453), agonists, antagonists and antibodies, and methods for their use in the treatment and diagnosis of conditions associated with altered
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.1%; Score 36.6; DB 21; Length 1614; 30.7%; Pred. No. 0.55; ive 35; Mismatches 132; Indels 0;
                                                                  Cytokine receptor; zalphall; human; chromosome 16pll.1; apoptosis; signal transduction; growth factor; cancer; tumour; infection; gene therapy; diagnosis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1614 BP; 209 A; 190 C; 302 G; 204 T; 709 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conklin DC, Novak JE, Hammond AK;
                                  Human cytokine receptor zalphall degenerate DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 2(a); Page 150-151; 190pp; English.
                                                                                                                                                                                          Location/Qualifiers
1..57
/*tag= a
58..1614
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       zalphall expression or activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                             98US-0159254.
99US-0265117.
99US-0347930.
                                                                                                                                                                                                                                                                                                                                                                                                      99WO-US22149
18-JUL-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity 30.7 nes 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (ZYMO ) ZYMOGENETICS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2000-292825/25.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P-PSDB; AAY79312
                                                                                                                                                                                                                                                                                                                         WO200017235-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Presnell SR,
                                                                                                                                                                                                                                                                                                                                                                                                        23-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 23-SEP-1998;
                                                                                                                                                              Homo saplens
                                                                                                                                                                                                                                                                                                                                                                30-MAR-2000.
                                                                                                                                                                                                                    sig_peptide
                                                                                                                                                                                                                                                               mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Loca
Matches
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The invention relates to an isolated soluble zalphall cytokine receptor inhibiting or antagonising the ligand activity-induced proliferation of nantaponising the ligand activity-induced proliferation of haematopoletic cells and haematopoletic cell progenitors preferably calphals useful for treating immune and inflammatory disorders, for zalpha is useful for treating immune and inflammatory disorders, for reducing proliferation of neoplastic B or T cells, for suppressing an immune response in a mammal exposed to an antigen or pathogen. Zalpha is useful for treating diseases that require immune regulation including autoimmune diseases such as rheumatoid arthritis, multiple sclerosis, myasthenia gravis, systemic lupus erythematosus (SLE) and dlabetes; esphis, viral infection (dengue virus infection) and cancer. The present sequence is human soluble Zalphall cytokine receptor CDNA degenerate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1003 GTCCTGCTATATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCC 1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1063 CGATAATCCGTCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAA 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        943 GGGTGATGTAGGTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            883 GTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAAACGTTCTGGTCTTAC
                                                                                                                                                                                                                                                                   Nelson AJ;
                                                                                                                                                                                                                                                                                                                                                 Novel soluble receptor polypeptides and polynucleotides used as cytokine antagonist for stimulating ligand activity-induced proliferation of hematopoietic cells and for suppressing immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.1%; Score 36.6; DB 24; Length 654; 30.7%; Pred. No. 0.33;
                                                                                                                                                                                                                                                                   Holly RD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 654 BP; 116 A; 69 C; 101 G; 86 T; 282 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       132;
                                                                                                                                                                                                                                                                     Presnell SR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 10; Page 179; 243pp; English.
                                                                                                                                                                                                                                                                     West JW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAZ94534 standard; DNA; 1614 BP
                                                                                                                                                                   05-APR-2000; 2000US-194731P. 28-JUL-2000; 2000US-222121P.
                                                                                                                            03-APR-2001; 2001WO-US10872.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         74; Conservative
                                                                                                                                                                                                                                 (ZYMO ) ZYMOGENETICS INC.
                                                                                                                                                                                                                                                                        Novak JE,
                                                                                                                                                                                                                                                                                                                                                                                                                   response in a mammal
                                                                                                                                                                                                                                                                                                            WPI; 2002-025898/03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 74; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1123 A 1123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300 R 300
                                               WO200177171-A2
```

sednence.

AAZ94534;

AAZ94534 ID AAZ9 XX AC AAZ9

RESULT 23

셤 à g ŏ

셤 ö g ð

à

BP.

```
AAK34523 standard; DNA; 598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-SEP-2000;
27-SEP-2000;
04-OCT-2000;
                                                                                                                                                                                                                                                                             Homo saptens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26-MAY-2000;
30-JUN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                             04-FEB-2000;
                                                                                                                        06-NOV-2001
                                                                                                                                                                                                                                                                                                                                                          09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        383
                                                                                   AAK34523;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Penn SG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
  RESULT 25
                        AAK34523
                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1113 AAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGCTTCCGGAGCAATTTTACTTTT 1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     384
                                                                                                                                                                                                                                                                                                              Human; foetal liver; gene expression; single exon nucleic acid probe; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to a single exon nucleic acid probe for measuring human gene expression in a sample derived from human foetal liver. The single exon nucleic acid probes may be used for predicting, measuring and displaying gene expression in samples derived from human fetal liver. The present sequence is a single exon nucleic acid probe of the invention.

Whote: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           503 TAMANTGTACAGGCCACTTGTACAGAGCTCATGATGACAGTGAATTGAACACTCATTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human genome-derived single exon nucleic acid probes useful for analyzing gene expression in human fetal liver -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 36.2; DB 22; Length 598; Pred. No. 0.42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 1; SEQ ID NO 8663; 639pp + sequence listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               53; Indels
                                                                                                                                                                                                                                                                      Human foetal liver single exon nucleic acid probe #8663.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 598 BP; 169 A; 109 C; 137 G; 183 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rank DR;
                                                                                                                                          ABA60358 standard; DNA; 598 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (MOLE-) MOLECULAR DYNAMICS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0234687.
2000US-0236359.
2000GB-0024263.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000US-0180312.
2000US-0207456.
2000US-0608408.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-JAN-2001; 2001WO-US00669
                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity 56.2
nes 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hanzel DK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2001-483447/52
1123 A 1123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1173 T 1173
                                                                                                                                                                                                                                                                                                                                                                                               #0200157277-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    383 T 383
                                     357 R 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-AUG-2000;
21-SEP-2000;
27-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                       Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      04-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-MAY-2000;
30-JUN-2000;
                                                                                                                                                                                                                             01-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                         09-AUG-2001
                                                                                                                                                                                     ABA60358;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Penn SG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                        ABA60358,
                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 合
ð
                                     셤
                                                                                                                                                                                     NAMES OF THE PROPERTY OF THE P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
1113 AAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGCTTCCGGAGCAATTTTACTTTT 1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention provides a number of single exon nucleic acid probes which are derived from genomic sequences expressed in the human bone marrow. They can be used to measure gene expression in bone marrow samples, which may enable the improved diagnosis and treatment of cancers such as lymphoma, leukaemia and myeloma. The present sequence is one of the probes of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          503 TAAAATGTACAGGCCACTTGTACAGAGCTCATGATGACAGTGAATTGAACACTCATTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                         Human; bone marrow expressed exon; gene expression analysis; probe; microarray; cancer; leukaemia; lymphoma; myeloma; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human genome-derived single exon nucleic acid probes useful for analyzing gene expression in human bone marrow
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                          Human bone marrow expressed single exon probe SEQ ID NO: 9080.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 4; SEQ ID NO: 9080; 658pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 598;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 598 BP; 169 A; 109 C; 137 G; 183 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 36.2; DB Pred. No. 0.42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAI40240/c
ID AAI40240 standard; DNA; 598 BP.
XX
AC AAI40240;
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (MOLE-) MOLECULAR DYNAMICS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.18;
                                                                                                                                                                                                                                                                                                                                                                                  2000US-0207456.
2000US-0608408.
2000US-0632366.
                                                                                                                                                                                                                                                                                                          30-JAN-2001; 2001WO-US00668
                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0234687
2000US-0236359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000GB-0024263
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 56.2
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hanzel DK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2001-488900/53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1173 T 1173
                                                                                                                                                                                                           WO200157276-A2.
```

ö

```
ulcerative colitis; inflam
viral infection; variant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1133 A 1133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      W 439
                                                  WO200177171-A2
                                                                                                                 05-APR-2000;
                                Homo sapiens.
                                                                                                                                                                     Sprecher CA,
                                                                        18-OCT-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1113 AAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGCTTCCGGAGCAATTTTACTTTT 1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1053 TTAMATTCCCCGATAMTCCGTCGAMGTCTGAGGATGGAMGGAMGGTGAMGGCTGTTCCTG 1112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          503 TAAAATGTACAGGCCACTTGTACAGAGCTCATGATGACAGTGAATTGAACACTCATTGTC 444
                                                                                                                                                                                                                                                                                                                                                          The present invention relates to single exon nucleic acid probes (SENP). The present sequence is one such probe. The probes are useful for prodicting a microarray for predicting, measuring and displaying gene expression in samples derived from human placenta. The probes are useful for antenatal diagnosis of human genetic disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human; Zalphall; cytokine receptor; immunosuppressive; cytostatic;
inflammatory disorder; haemostatic; cell proliferation; immune disorder;
autoimmune disease; rheumatoid arthritis; multiple solerosis; cancer;
myasthenia gravis; systemic lupus erythematosus; SLE; diabetes; asthma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                      to measure gene expression in human placenta sample.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human soluble Zalphall cytokine receptor variant degenerate CDNA
                                                                                                                                                                                                                                                                                                          Human genome-derived single exon nucleic acid probes useful for analyzing gene expression in human placenta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 36.2; DB 22; Length 598;
Pred. No. 0.42;
0; Mismatches 53; Indels 0
                                           microarray; human; placenta; antenatal diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 598 BP; 169 A; 109 C; 137 G; 183 T; 0 other;
                                                                                                                                                                                                                                                                                                                                          Claim 25; SEQ ID No 8926; 654pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAD22970 standard; cDNA; 741 BP
                                                                                                                                                                                                                                                (MOLE-) MOLECULAR DYNAMICS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                              3.1%;
56.2%;
                                                                                                                                                            2000US-0180312.
2000US-0207456.
2000US-0608408.
                                                                                                                                                                                          2000US-0632366.
2000US-0234687.
2000US-0236359.
2000GB-0024263.
                                                                                                                                        30-JAN-2001; 2001WO-US00663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
  17-0CT-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                       genetic disorder; ss
                                                                                                                                                                                                                                                                    Hanzel DK,
                                                                                                                                                                                                                                                                                         WPI; 2001-488897/53.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                       used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1173 T 1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                383 T 383
                                                                                               WO200157272-A2
                                                                                                                                                                                          03-AUG-2000;
21-SEP-2000;
27-SEP-2000;
04-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26-FEB-2002
                                                                            Homo sapiens
                                                                                                                                                                         26-MAY-2000;
30-JUN-2000;
                                                                                                                                                             04-FEB-2000;
                       Probe #8926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68;
                                                                                                                   09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Si
Matches 68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAD22970;
                                                                                                                                                                                                                                                                     Penn SG,
                                            Probe;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
The invention relates to an isolated soluble zalphall cytokine receptor polypeptide and their cDNA molecules. Zalpha proteins are useful for inhibiting or antagonising the ligand activity induced proliferation of heematopoietic cells and haematopoietic cell progenitors preferably imphoid cells which are natural killer cells or cytotoxic T cells. Zalpha is useful for treating immune and inflammatory disorders, for reducing proliferation of neoplastic B or T cells, for suppressing an immune response in a mammal exposed to an antigen or pathogen. Zalpha is useful for treating diseases that require immune requiation including autoimmune diseases such as rheumatoid arthritis, multiple sclerosis, myasthenia gravis, systemic lupus erythematosus (SIE) and diabetes; asthma, ulocarative colitis, inflammatory bowel disease, copies, viral infection (dengue virus infection) and cancer. The present sequence is human soluble Zalphall cytokine receptor variant cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1073 TCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATC 1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       199 ATHAARGAYMGNACNYTNGAYYTNMGNCARGAYCARTAYGARGARYTNAARGAYGARGCN 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                colitis; inflammatory bowel disease; Crohn's disease; sepsis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       259 ACNWSNTGYWSNYTNCAYMGNWSNGCNCAYAAYGCNACNCAYGCNACNTAYACNTGYCAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       833 AACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 893 CACAACAATGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      953 GGTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1013 ATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Novel soluble receptor polypeptides and polynucleotides used as cytokine antagonist for stimulating ligand activity-induced proliferation of hematopoietic cells and for suppressing immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.1%; Score 36.2; DB 24; Length 741; 27.6%; Pred. No. 0.48; tive 48; Mismatches 170; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Holly RD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 741 BP; 133 A; 79 C; 116 G; 91 T; 322 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Presnell SR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure; Page 222-223; 243pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      West JW,
                                                                                                                                                                                                                                                                                                                                                                                                                            05-APR-2000; 2000US-194731P.
28-JUL-2000; 2000US-222121P.
                                                                                                                                                                                                                                                                                                                                                   03-APR-2001; 2001WO-US10872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 27.69
Matches 83; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ZYMO ) ZYMOGENETICS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Novak JE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 response in a mammal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        degenerate sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2002-025898/03.
```

Page 19

AAD06409 standard; DNA; 1704 BP.

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to a novel DNA array giving a representation of a number of Methylococcus capsulatus genes. The method of the invention is useful for determination of the differential expression of the genes of M. capsulatus, and for studying gene expression on a genomic scale and in gene expression assays of M. capsulatus genes. The sequences shown in ABQ90016-ABQ91855 represent M. capsulatus genes for use in arrays of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  274 CTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTG 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                334 CGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAA 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 394 TGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGGGACTGACGCTT 453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               952 cccreccecerereccarracececerrecceseresecereseces 893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGCCTCCCGGCAGCCGGGCACGTCGGTGACGATGCCCCGCGTGCAGGCGGCGGCTT 773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Methylococcus capsulatus genes, comprises polynucleotides or oligonucleotides representative for a selective number of Methylococcus capsulatus genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Novel DNA array useful for determining differential expression of
                                                                                                                                                  Micro array; gene; ds; differential expression; gene expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACACACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 24; Length 1029;
                                                                                                                                                                                                                                                                                                                                                                                                  Jonassen I, Jensen HB, Lien T
Eisen JA, Fraser CM, Durkin AS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 36.2; DB 24; Length
Pred. No. 0.58;
0; Mismatches 123; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1029 BP; 159 A; 359 C; 353 G; 158 T; 0 other;
                                                                                                                    M. capsulatus gene #191 for DNA array
                                                                                                                                                                                                                                                                                                                                                    (UNIF-) UNIFOB STIFTELSEN UNIV BERGEN
(TIGR-) TIGR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 19; Page 144; 678pp; English.
              ABQ90206/c
ID ABQ90206 standard; DNA; 1029 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3.18;
                                                                                                                                                                                                                                                                         14-JAN-2002; 2002WO-NO00019.
                                                                                                                                                                                                                                                                                                      12-JAN-2001; 2001NO-0000235.
                                                                                                                                                                                                                                                                                                                                                                                                    Eidhammer I,
                                                                                                                                                                                                                                                                                                                                                                                                                  Lossius I,
                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  al Similarity 47.2
110; Conservative
                                                                                                                                                                                Methylococcus capsulatus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             PI; 2002-557818/59.
                                                                                                                                                                                                              #0200255655-A2.
                                                                                                                                                                                                                                                                                                                                                                                                 Birkeland NK,
Lillehaug JR,
                                                                                                                                                                                                                                                                                                                                                                                                                               Salzberg SL;
                                                                                       01-0CT-2002
                                                                                                                                                                                                                                             8-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Invention
                                                          ABQ90206;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loca
Matches
RESULT 28
                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
```

RESULT 29 AAD06409

```
(DCRS3.1) reverse translational DNRAD DCRS3 gene is located on chromosome lept2. Cytokine receptors, fragments and antibodies are useful contromosome lept2. Cytokine receptors, fragments and antibodies are useful for treating immunological disorders. DCRS3 (50R), DCRS4 (cytor) or fragments are useful in drug screening to identify compounds having binding affairty to the receptor subunit. Modulators of DCRS are useful so modulating the physiology or development of a cell or tissue culture cells. A purified DCRS is useful as a reagent to detect antibodies generated in response to the presence of elevated levels of expression, or immunological disorders which lead to production of antibody to the endogenous receptor. Cytokine receptor sequences are useful as probes of the cytokine receptor in patients suspected of having an immunological disorder. Antibodies have therapeutic value, are useful as potent antagonist, in detecting or quantifying ligands, for solating DCRS proteins and peptides, to screen expression libraries for particular expression products, to raise anti-idiotypic antibodies and for detecting or diagnosing various immunological conditions related to expression of the protein or cells which express the protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTAT 1012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1013 ATTACTGTCATGGCCACTATGGCAGATGACCAGATTAAGTTAAATTCCCCGATAATCCC 1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      833 AACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGG 892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACNWSNTGYWSNYTNCAYMGNWSNGCNCAYAAYGCNACNCAYGCNACNTAYACNTGYCAY 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    893 CACAACAATGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTA 952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 259 ATHAARGAYMGNACNYTNGAYYTNMGNCARGAYCARTAYGARGARYTNAARGAYGARGCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mammalian receptor proteins related to cytokine receptors, useful regulating cell development and for diagnosis and treatment of
                                                                                                                                                        Human; immunomodulator; DNAX cytokine receptor subunit 3.1; DCRS3.1; therapy; immunological disorder; drug screening; cell development;
                                                                                                                      Human DNAX cytokine receptor subunit 3.1 reverse translational DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present sequence is human DNAX cytokine receptor subunit 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.1%; Score 36.2; DB 22; Length 1704; 77.6%; Pred. No. 0.77; ve 48; Mismatches 170; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1704 BP; 227 A; 201 C; 315 G; 209 T; 752 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; Page 17-18; 124pp; English
                                                                                                                                                                                                                                                                                                                                                                                                        99US-0443060.
99US-0170320.
                                                                                                                                                                                                                                                                                                                                                                  16-NOV-2000; 2000WO-US31363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27.68;
                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lmmunological disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (SCHE ) SCHERING CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2001-343800/36.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 83; Conserv
                                                                                                                                                                                                     chromosome 16p1;
                                                                                                                                                                                                                                                                                 WO200136467-A2.
                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                          18-NOV-1999;
                                                                            10-AUG-2001
                                                                                                                                                                                                                                                                                                                         25-MAY-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                             13-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3orman DM;
                                        AAD06409;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
```

```
9900 SRGYSSRGSDSRGNCYINSTNCYDASTSDIBYSRCCYTYSYSSTDSTDSTNSTTBSD 9841
                                                                                        9780 RCSRDSTYSSRGYDANSTSRYSSRYSSRYSSDSTYSAKYCAKSTTBTBCYYDAYDACYDA 9721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The invention relates to an isolated nucleic acid molecule (I) comprising a nucleotide sequence given in Tables 1-9 (ABV00010-ABV62213) of the specification or its complement. (I) is useful for:
(a) assessing whether a patient is afflicted with prostate cancer;
(b) monitoring the progression of prostate cancer in a patient;
(c) assessing the efficacy of a test compound to inhibit prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (d) assessing the efficacy of a therapy for inhibiting prostate cancer in a patient;
(e) selecting a composition for inhibiting prostate cancer in a patient;
(f) assessing the prostate call carcinogenic potential of a compound;
(g) determining whether prostate cancer has metastasized in a patient;
(h) assessing the aggressiveness or indolence of prostate cancer in a
                                                                                                                                                                                                                                                                                                                                                                                                    cancer; cytostatic; carcinogen; pharmacodyanamic marker; marker; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Novel isolated nucleic acid molecule associated with cancerous state of prostate cells and correlating with presence of prostate cancer, useful for detecting presence of prostate cancer.
                                                                 CATITICCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAA
                                                                                                                            418 CACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (I) is also useful as a pharmacodyanamic or pharmacogenomic marker.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (MILL-) MILLENNIUM PREDICTIVE MEDICINE INC.
                                                                                                                                                                                                                                                                                                                                                                             Human prostate expression marker cDNA 3338.
                                                                                                                                                                                                    9720 YDANCYSSDSTYTBYCSRRCCC 9699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Monahan JE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 1; Page 609; 11750pp; English.
                                                                                                                                                                                      619
                                                                                                                                                                                         GIGCTICGIATICITCACGCCC
                                                                                                                                                                                                                                                                                          ABV03347 standard; cDNA; 650 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-183319P.
2000US-189862P.
2000US-207454P.
2000US-211314P.
2000US-219007P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20-FEB-2001; 2001WO-US05171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-255281P
                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Endege
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2001-662795/76.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (c) assessing the ef
cancer in a patient;
                                                                                                                                                                                                                                                                                                                                                                                                           Human; prostate
pharmacogenomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200160860-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17-FEB-2000; 2
16-MAR-2000; 2
25-MAY-2000; 2
09-JUN-2000; 2
18-JUL-2000; 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                    13-SEP-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Schlegel R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23-AUG-2001
                                                                      478
                                                                                                                               538
                                                                                                                                                                                        598
                                                                                                                                                                                                                                                                                                                     ABV03347;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             patient;
                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                               ABV0334
                                                                                                                                                                                                                                                                                                                                                                                셤
                                         윱
                                                                                                셤
                                                                                                                               à
                                                                                                                                                                                         ò
                                                                                                                                                                                                                  셤
                                                                      ò
               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       : |: ::|| ||: : : |:: |:: : : :||:: |::| | ::||
DNCSRSRITSTCYTAKXSYSTBSTNCYSDSRGSDNSTAKYASTTTYDAYDARCTIDNSTR 10078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of
of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCGCCGTTATCTGTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTG 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       357
This sequence represents a gene encoding a subunit of the cellulose synthase complex of Vigna angularis. The invention relates to subunits cellulose synthetic equipment, that can be used to increase the amount callulose synthesised by a plant. The proteins and genes encoding them can also be used to improve the properties of the cellulose being produced by a plant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               238 CCGITCIGITAAIAICAAACGGTACICAAIAICTICICIGGCGCIGGCIGCCAICAICC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1073 TCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATC
                                                                   GGNAAYTAYWSNCARGARTGYGGNWSNTTYYTNYTNGCNGARWSNMGNCARTAYAAYATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the improvement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 21; Length 10732;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 10732 BP; 3149 A; 1212 C; 2074 G; 2046 T; 2251 other;
                                                                                                                                                                                                                                                                                                                          Cellulose synthase; cellulose production; increase yield; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A gene encoding a cellulose synthetic equipment - for in the amount of cellulose synthesised in a plant body
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.1%; Score 36.2; DB 21;
L Similarity 15.4%; Pred. No. 2.3;
68; Conservative 174; Mismatches 197;
                                                                                                                                                                                                                                                                                             Gene encoding a subunit of cellulose synthase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 2; Page 14-21; 32pp; Japanese
                                                                                                                                                                                              )594/c
AAA10594 standard; DNA; 10732 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98JP-0239998
                                                                                                                                                                                                                                                                                                                                                                                                                                            98JP-0239998
                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (MIZU/) MIZUNO K.
(OJIP ) OJI PAPER CO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2000-342371/30.
P-PSDB; AAY85179.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                     A 1133
                                                                                                                                                                                                                                                                                                                                                         Vigna angularis
                                                                                                                                                                                                                                                                                                                                                                                   JP2000060568-A.
                                                                                                                                  W 499
                                                                                                                                                                                                                                                                                                                                                                                                                                            26-AUG-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-AUG-1998;
                                                                                                                                                                                                                                                                 29-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                29-FEB-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   358
                                                                                                      1133
                                                                                                                                                                                                                                    AAA10594:
                                                                           439
                                                                                                                                  499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Loc
Matches
                                                                                                                                                                                            AAA10594
                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                       ð
                                                                         셤
                                                                                                        õ
                                                                                                                                  셤
                                               ò
```

```
Contreras RH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nelissen BJM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-JAN-2001
                                                                                                                                                             Best Local Sim
Matches 160;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAH29949;
                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAH29949,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8888888888888
                                                                                                                                                                                                  ð
                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The invention describes a method of monitoring differential expression of genes in a first Bacillus cells, comprising hybridising labelled nucleic acid probes to ther Bacillus cells, comprising hybridising labelled nucleic acid probes isolated from Bacillus cells to a substrate containing array of Bacillus genomic sequenced tags (GST), examining the array, and determining relative gene expression by an observed hybridisation reporter signal of a spot in the array. The method is useful for measuring the expression of genes in a first Bacillus cells. The method is useful for monitoring global expression of several genes from a Bacillus cell, discovering new genes, identifying possible functions of unknown open reading frames and monitoring gene copy number variation and stability. Monitoring changes in expression of genes may be used to provide a representation of the way in which Bacillus cells adapt to changes in culture conditions,
                                                             ö
                                                                                                 74 TCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGATAAATTACTC 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Monitoring differential expression of several genes in first Bacillus cell relative to expression of same genes in one or more second Bacillus cells, by using substrate containing Bacillus genomic
                                                                                   14 AAAAAAAGCCAAAAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAATAGGCCTGT
                                                             Gaps
                                                             ö
                                  Score 36; DB 23; Length 650;
Pred. No. 0.51;
                                                                                                                                                                                                                                                                                                                                                                       Differential gene expression; genomic sequenced tag; GST; altered culture condition; environmental stress; physiological provocation; ds.
                                                          76; Indels
                                                                                                                                                                                                                                                                                                                                               Bacillus licheniformis genomic sequence tag (GST) #757
          Sequence 650 BP; 180 A; 110 C; 118 G; 199 T; 43 other;
                                                                                                                                                                                    CGTTACCGGAAAACCGCTGAACAAAATTCGG 164
                                                                                                                                                                                                   GGTTAATTTTAAACCAATTAANAAAAAGGG 629
                                              Pred. No. 0.51
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 4; SEQ ID NO 757; 200pp; English.
                                                                                                                                                                                                                                                                        BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (NOVO ) NOVOZYMES BIOTECH INC.
                                                                                                                                                                                                                                                        ABK73466/c
ID ABK73466 standard; DNA; 1427
                                  ch
1 Similarity 49.7%;
75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        06-OCT-2000; 2000US-0680598.
27-MAR-2001; 2001US-279526P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               05-OCT-2001; 2001WO-US31437.
                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Monitoring differential
                                                                                                                                                                                                                                                                                                                                                                                                                         Sacillus licheniformis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Berka R, Clausen IG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2002-416684/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequenced tag array
                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                 40200229113-A2.
                                                                                                                                                                                                                                                                                                                       13-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11-APR-2002.
                                                                                                                                                                                                                                                                                               ABK73466;
                                                            Matches
                                                                                                                                                                                                                                               RESULT
X S
                                                                                                                                                                                                                                                                                                셤
                                                                                                                                   ð
                                                                                                                                                         셤
                                                                                                                                                                                   ò
                                                                                                                                                                                                       용
```

```
ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1095 AATCTTGCGGCTGAGCGGTTCATGAAACCGATATACGCCTTGCACCTGTCCGGAAAAGC 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            518 GACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCAGGTG 577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                975 CTGCATGTCTTCTTCAA---ACAGTTCATGCAATACCCGCTTGATCAAATCGAAGCC 919
environmental stress or other physiological provocation. Extensive follow-up characterisation is unnecessary, when one spot on an array equals one gene or one open reading frame, since sequence information is available. This sequence represents a genomic sequence tag (GST) used in the method of the invention.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Yeast and fungal nucleic acids encoding proteins involved in a pathway
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              458 CAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      578 TICTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCCGGCGCCCACCACGAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1035 ATGCTCCATATAGCGGAAGTAATTTTCAAATTCCGCTTCCCGGTTCCTAAAACGATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    638 GCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCATGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                           .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yeast; fungus; apoptosis; infection; proliferative disease; vaccine; autoimmune disease; ischaemia; neurodegeneration; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          918 TITITGCTICGICAGCCTIGCCACCAIGCIGAIGAGCGGAAIGICTIC 871
                                                                                                                                                                                                                                                                                                                                                                                      3.0%; Score 36; DB 24; Length 1427; 6.0%; Pred. No. 0.81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cerevisiae apoptosis associated coding sequence YKR040C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTTCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches 185; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Malcorps IKL;
                                                                                                                                                                                                                                                                                                                          Sequence 1427 BP; 378 A; 305 C; 379 G; 365 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Luyten WHML,
                                                                                                                                                                                                                                                              ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAH29949 standard; DNA; 1859 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 De Backer MD,
Reekmans RJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-JUL-2000; 2000WO-BE00077.
                                                                                                                                                                                                                                                                                                                                                                                                                   46.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99EP-0870141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27-JUL-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (JANC ) JANSSEN PHARM NV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Saccharomyces cerevisiae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2001-367042/38.
P-PSDB; AAG70913.
                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200102550-A2.
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to isolated polynucleotide (I) and polypeptide (II) sequences. (I) is useful as hybridisation probes, polymerase chain reaction (PCR) primers, oligomers, and for chromosome and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags for identifying expressed genes. (I) is useful in gene therapy techniques
                                                                                       The present invention provides the protein and coding sequences of a number of apoptosis associated proteins from the yeast Saccharomyces cerevisiae and the fungus Candida albicans. These can be used to identify treatments for fungal and yeast infections, for proliferative diseases and for apoptosis related diseases such as autoimmune diseases, ischaemta and neurodegeneration. The present sequence is one of the S. cerevisiae coding sequences of the invention.
                                                                                                                                                                                                                                                                                                                           programmed cell death, useful for treating proliferative yeast and fungal infections, or for preventing apoptosis in
                                                                                                                                                                                                                                                                                                                                                                                                              ACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG 490
                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           forensic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human; chromosome mapping; gene mapping; gene therapy; forensic; food supplement; medical imaging; diagnostic; genetic disorder;
                                                                                                                                                                                                                                                                                              .
                                                                                                                                                                                                                                                          Score 36; DB 22; Length 1859;
Pred. No. 0.95;
0; Mismatches 50; Indels (
                                                                                                                                                                                                                               Sequence 1859 BP; 663 A; 297 C; 358 G; 541 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA encoding novel human diagnostic protein #1097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 1; SEQ ID No 1097; 103pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAS65293 standard; cDNA; 426 BP
                                                                 Claim 1; Fig 1; 218pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tang YT;
                                                                                                                                                                                                                                                            7 Match 3.0%;
Local Similarity 56.9%;
nes 66; Conservative C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30-MAR-2001; 2001WO-US08631.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31-MAR-2000; 2000US-0540217
23-AUG-2000; 2000US-0649167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-FEB-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drmanac RT, Liu C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2001-639362/73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (HYSE-) HYSEQ INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P-PSDB; ABG01106.
                                  certain diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200175067-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11-0CT-2001.
     ដ
                      disorders,
                                                                                                                                                                                                                                                                                                                                                                                                435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAS65293;
                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                      Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 34
AAS65293/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                             셤
```

```
to restore normal activity of (II) or to treat disease states involving (II). (II) is useful for generating antibodies against it, detecting or quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical imaging of sites expressing (II). (I) and (II) are useful for treating disorders involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in diagnostics, forensics, gene mapping, identification of mutations cresponsible for genetic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and amino acid sequences. AAS64197-AAS94564 represent novel human conding sequences of the invention.

So diagnostic coding sequences of the invention.

So disponsible for was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to an isolated nucleic acid molecule (I) comprising a nucleotide sequence given in Tables 1-9 (ABV00010-ABV62213) of the
                                                                                                                                                                                                                                                                                                                                                                   525 AACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCAGGTGTTCTGTC 584
                                                                                                                                                                                                                                                                                                                                                                                      cytostatic; carcinogen; pharmacodyanamic marker; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Novel isolated nucleic acid molecule associated with cancerous state of prostate cells and correlating with presence of prostate cancer, useful for detecting presence of prostate cancer.
                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                 Length 426;
                                                                                                                                                                                                                                                                                                                                  27; Indels
                                                                                                                                                                                                                                                                    Sequence 426 BP; 113 A; 105 C; 113 G; 95 T; 0 other;
                                                                                                                                                                                                                                                                                                      DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human prostate expression marker cDNA 48863.
                                                                                                                                                                                                                                     at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                   3.0%; Score 35.8; Di
65.8%; Pred. No. 0.47
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (MILL-) MILLENNIUM PREDICTIVE MEDICINE INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 1; Page 9567; 11750pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Monahan JE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                334 CTCTGGGGAAGACTGGCTT 316
                                                                                                                                                                                                                                                                                                                                                                                                                                      585 TGCTGACGCAGACGTGCTT 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABV48872 standard; cDNA; 488 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-189862P.
2000US-207454P.
2000US-211314P.
2000US-219007P.
2000US-255281P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20-FEB-2001; 2001WO-US05171.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-183319P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                      Local Similaricy
nes 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cancer; c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Endege
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-662795/76.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human; prostate
pharmacogenomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200160860-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-MAR-2000; 2
25-MAY-2000; 2
09-JUN-2000; 2
18-JUL-2000; 2
13-DEC-2000; 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17-SEP-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Schlegel R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABV48872:
                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABV4887;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
          555555555555555555X8
                                                                                                                                                                                                                                                                                                                                                                         ð
```

```
ö
                                                                                                                                                                                                                                    64
                                                                                                                                                                                                                                                        TAGGCCTGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGA 123
                                                                              selecting a composition for inhibiting prostate cancer in a patient; assessing the prostate cell carcinogenic potential of a compound; determining whether prostate cancer has metastasized in a patient;
                                                                                                                                                                                                                                                                            TCGCCCTATAGTGAGTCGTATTACGCGCGCTCACTGGCCGTCGTTTTACAACGACGTGA 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3630
/*tag= d
/note= "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
specification or its complement. (I) is useful for:

(a) assessing whether a patient is afflicted with prostate cancer;

(b) monitoring the progression of prostate cancer in a patient;

(c) assessing the efficacy of a test compound to inhibit prostate cancer in a patient;

(d) assessing the efficacy of a therapy for inhibiting prostate cancer in a patient;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a * in the maintain the
                                                                                                                                                                                                                5 AGGAGATGGAAAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAG
                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   , a * in tue
o maintain t
                                                                                                              assessing the aggressiveness or indolence of prostate cancer in
                                                                                                                                  (I) is also useful as a pharmacodyanamic or pharmacogenomic marker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this nucleotide is represented as a * in t
specification, and is included to maintair
base numbering given in the specification'
                                                                                                                                                                                             ö
                                                                                                                                                                       3.0%; Score 35.8; DB 23; Length 488; 56.3%; Pred. No. 0.51; Live 0; Mismatches 52; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       represented as is included to
                                                                                                                                                     C; 100 G; 111 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                             88
                                                                                                                                                                                                                                                                                                                                                                                       Stealth virus nucleic acid clone, SEQ ID NO: 24.
                                                                                                                                                                                                                                                                                                                                                                                                          Stealth virus; detection; diagnosis; infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       this nucleotide is specification, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                             ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /*tag- a
/note- "this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "this
                                                                                                                                                                                                                                                                                                                            AAX84332 standard; DNA; 5059
                                                                                                                                                    Sequence 488 BP; 170 A; 107
                                                                                                                                                                                           67; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag=
/note= "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag-
/note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3615
                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                               Stealth virus.
                                                                                                                                                                                                                                                                                                                                                                    08-SEP-1999
                                                                                                                                                                                                                                   316
                                                                                                                                                                                                                                                                                                                                               AAX84332;
                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                        65
                                                                                                                                                                                   Local
                                                                                                                                                                                           Matches
                                                                                9£6£
                                                                                                                                                                                                                                                                                                                   AAX84332
                                                                                                                                                                                                                                                                                                         RESULT
          ð
                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                      요
```

```
the
the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= n
/note= "this nucleotide is represented as a * in the
specification, and is included to maintain the
base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "this nucleotide is represented as a " in the
specification, and is included to maintain the
base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag= p
/note= "this nucleotide is represented as a * in the
specification, and is included to maintain the
base numbering given in the specification"
                                                                                                                                                                     'this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                              "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ships nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "this nucleotide is represented as a * in the
specification, and is included to maintain the
base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "this nucleotide is represented as a * in the
specification, and is included to maintain the
base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                     frthis nucleotide is represented as a * in the specification, and is included to maintain 'base numbering given in the specification"
                                                           this nucleotide is represented as a * in the specification, and is included to maintain base numbering given in the specification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This nucleotide is represented as a * in the specification, and is included to maintain base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  this nucleotide is represented as a * in the specification, and is included to maintain base numbering given in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q "this nucleotide is represented as a * in th specification, and is included to maintain base numbering given in the specification"
numbering given in the specification"
                                    this r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                o
this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "this
base
                                                                                                                                                                     "this
                                      /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag=
/note=
                                                                                                                                                                         /note=
                                                                                                                                                                                                                                                                                   /note=
                                                                                                                                                                                                                                                                                                                                                                                              /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note=
                                                                                                                                                                                                                                                                                                                                                                            /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag=
                                                                                                                                                /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_difference 3703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_difference 3720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3740
                                                                                                                           misc_difference 3642
                                                                                                                                                                                                                                         3657
                                                                                                                                                                                                                                                                                                                                                 misc_difference 3659
                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_difference 3681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_difference 3713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_difference 3732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_difference 3733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_difference 3747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_difference 3750
                                                                                                                                                                                                                                     misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_difference
                  misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_difference
```

us-09-674-277-2.rng

FT misc_difference 3857 FT /*tag- aj /*tag- aj /note= "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification" FT misc_difference 3860 FT /*tag- ak /note= "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification." FT misc_difference 3863 FT /*tag- al	3.0%; Score 35.8; DB 20; Length 5059; imilarity 14.7%; Pred. No. 2; ; Conservative 235; Mismatches 327; Indels 5; Gaps TAGACGGTAAAGGGGGAAAAGGGCACCTGCCATTAACAATCTCCGGTCATTCCAGG [: : : : : : : : : : : : : : : : : : :	Db 2990 THGNSDGDWKYSNGDARNTRVHANSYANYWBKGDSNCYCNHGNAYKSVTAKYNSVNTGS 2931 Qy 636 CAGCGAAATGATTCCCTTCCATCTTCAGCTGATACAAAATACATGT 695 :: :: : : : : : : : : :	8 8 8		Db 2455 SNGANTHNWAVANSTWSGNYHGNSTRTNSTGGHNTSGNYHYNKYBYKKTYCNHTTNCN 2396 Qy 1176 CTGCA 1180 Db 2395 STKYA 2391 RESULT 37 ABA19027/C ID ABA19027 standard; DNA; 5666 BP. XX XX AC ABA19027; XX XX DT 23-JAN-2002 (first entry)
"this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification" "this nucleotide is represented as a * in the base numbering given in the specification, and is included to maintain the base numbering given in the specification" "this nucleotide is represented as a * in the specification, and is included to maintain the specification, and is included to maintain the specification, and is included to maintain the	base numbering given in the specification. * this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification. * This nucleotide is represented as a * in the specification, and is included to maintain the hase numbering given in the specification.	"this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification" aa "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering of its in the specification, and is included to maintain the	base numbering given in the specification ab this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification. ac "this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification."	"this nucleotide is represented as a * in the specification, and is included to maintain the base numbering given in the specification" as a specification, and is included to maintain the specification, and is included to maintain the base numbering given in the specification af this nucleotide is represented as a * in the specification, and is included to maintain the specification in the specification.	"this nucleotide is represented as a * ispecification, and is included to maint base numbering given in the specification ah nucleotide is represented as a * is specification, and is included to maint base numbering given in the specification at its nucleotide is represented as a * is specification, and is included to maint base numbering given in the specification and is included to maint specification, and is included to maint base numbering given in the specification base numbering given in the specification.
/note= "f	misc_difference 3778 /*tag= /note=""" misc_difference 3792 /*tag= /note="""	misc_difference 3799 /*tag= /note= " /*tag= /note= " /*tag=		/note= "misc_difference 3819 /*tag= /note= misc_difference 3824 /*tag= /note= "note= "	misc_difference 3827 /*tag=/note=" misc_difference 3841 /*tag=/note=" misc_difference 3853 /*tag=/note="

```
2000US-0232401
2000US-0233064
2000US-0233064
2000US-0234024
2000US-0234274
2000US-0234998
2000US-0235484
2000US-0235884
2000US-0235836
2000US-0235836
2000US-0236363
2000US-023636
                                                                                                                                                                                                                                                                        20000US-0239937.
2000US-0241785.
2000US-0241786.
2000US-0241809.
2000US-0241809.
2000US-0241809.
2000US-0244617.
2000US-02446476.
2000US-0246478.
2000US-0246478.
2000US-0246478.
2000US-0246478.
2000US-0246478.
2000US-0246478.
2000US-0246528.
2000US-0246529.
2000US-0246529.
2000US-0246529.
2000US-0246529.
2000US-0246529.
2000US-0246529.
2000US-0246529.
2000US-0246529.
2000US-0246539.
2000US-0246539.
2000US-0246539.
2000US-0246539.
2000US-0246339.
2000US-0246319.
2000US-0249219.
2000US-0249219.
2000US-0249218.
2000US-0249214.
2000US-0249214.
2000US-0249214.
2000US-0249218.
                                                                                      SEP-2000;
SEP-2000;
SEP-2000;
SEP-2000;
SEP-2000;
SEP-2000;
SEP-2000;
SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                        -NOV-2000;
                                                                                                                                                                                            -SEP-2000
                                                                                                                                                                                                                                                                                                                                                                               -NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                         -NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NOV-2000
ds.
                             Human; nootropic; neuroprotective; cytostatic; dermatological; virucide; immunosuppressive; antiinflammatory; anti-HIV; antibacterial; vulnerary; antiparkinsonlan; antisickling; antianaemic; antiarthritic; cancer; antirheumatic; hepatotropic; cerebroprotective; antiinflammatory; antianelergic; antidiabetic; antiuncer; antionvulsant; antidingal; antiparasitic; cardiant; immune disorder; cardiovascular disorder; neurological disease; infection; nephrotropic; gene therapy; vaccine; ds
         Human nervous system related polynucleotide SEQ ID NO 11358.
                                                                                                                                                                                                                                              2000US-0186350.
2000US-0189874.
2000US-0190076.
2000US-0198123.
2000US-0209467.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000US-0225270
2000US-0225447.
2000US-0225759.
2000US-0225759.
2000US-0226279.
2000US-0226681.
2000US-0226868.
2000US-02288924.
2000US-0228924.
2000US-0229343.
2000US-0229343.
2000US-0229344.
2000US-0229345.
                                                                                                                                                                                        2001WO-US01334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0232397
2000US-0232398
                                                                                                                                           WO200159063-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22-AGG-2000;
23-AGG-2000;
30-AGG-2000;
01-SEP-2000;
01-SEP-2000;
01-SEP-2000;
01-SEP-2000;
06-SEP-2000;
06-SEP-2000;
06-SEP-2000;
08-SEP-2000;
08-SEP-2000;
08-SEP-2000;
08-SEP-2000;
08-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14-AUG-2000;
14-AUG-2000;
18-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12-SEP-2000;
14-SEP-2000;
14-SEP-2000;
                                                                                                                      Homo sapiens
                                                                                                                                                                                        17-JAN-2001;
                                                                                                                                                                                                                                                                                              MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14-AUG-2000;
14-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-AUG-2000;
22-AUG-2000;
                                                                                                                                                                   16-AUG-2001
```

```
2001WO-US01354
                                                                                                                                                                                                              2000US-0190076
                                                                                                                                                                                                                                                                      19-MAY-2000; 2000US-0205515
                                                                                                                                                                                                                      17-MAR-2000;
                                                                                                                                                                                                                                                                                                                                         30-JUN-2000;
07-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14-SEP-2000;
                                                17-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              08-SEP-2000;
                                                                                                                                                                   02-MAR-2000;
16-MAR-2000;
09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (ABB14678-ABB18001) useful for preventing, treating or ameliorating medical conditions e.g. by protein or gene therapy. The genes are isolated from a range of human tissues disclosed in the specification. The nucleic acids, proteins, antibodies and (ant)agonists are useful in the diagnosis, treatment and prevention of: (a) cancer, e.g. breast and ovariant cancers of the adrenal gland, bone, hone marrow, breast, gastrointestinal tract, liver, lung, or urogenital; (b) immune disorders e.g. Addison's disease, altergies, autoimmune themolytic anaemia, autoimmune thyroiditis, diabetes mellitus, Crohn's colitis; (c) cardiovascular disorders such as myocardial ischaemias; (d) wound healing; (e) neurological diseases e.g. cerebral anoxia and emphasitic infectious diseases such as viral, bacterial, fungal and man and parasitic infectious diseases such as viral, bacterial, fungal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            525 AACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCAGGTGTTCTGTC 584
                                                                                                                                                                                                                                                                                                                                                                                      Nucleic acids encoding 3224 human nervous system antigen polypeptides, useful for preventing, diagnosing and/or treating nervous system cancers and metastases -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oute: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human; immune; haematopoletic; immune/haematopoletic antigen; cancer; cytostatic; gene therapy; vaccine; metastasis; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to novel genes (ABA11004-ABA21534) and proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human immune/haematopoietic antigen genomic sequence SEQ ID NO:30388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; SEQ ID NO 11358; 1701pp + Sequence Listing; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 5666;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 5666 BP; 1450 A; 1247 C; 1332 G; 1637 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches 27; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 35.8; DB 22;
Pred. No. 2.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4468 CTCTGGGGAAGACTGGCTT 4450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   585 IGCIGACGCAGACGIGCIT 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAK75576 standard; DNA; 5666 BP
                                                                                                                                                                                                                                                                                                  Ruben SM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity 65.8%;
les 52; Conservative
                                                                                                                                                                                                                                                  (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                 08-DEC-2000; 2000US-0251990.
11-DEC-2000; 2000US-0254097.
05-JAN-2001; 2001US-0259678.
                                                                                                   2000US-0251869
2000US-0251989
                                                          2000US-0251856
                                                                                 2000US-0251868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-NOV-2001 (first entry)
                                                                                                                                                                                                                                                                                                     Barash SC,
                                                                                                                                                                                                                                                                                                                                                WPI; 2001-541565/60.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200157182-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens.
                                                                            08-DEC-2000;
08-DEC-2000;
08-DEC-2000;
08-DEC-2000;
11-DEC-2000;
                              06-DEC-2000
                                                                                                                                                                                                                                                                                                  Rosen CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAK75576;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 38
AAK75576/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
```

g å

```
Barash SC, Ruben SM;
                                                                                                                                                                                     (HUMA-) HUMAN GENOME SCI INC
          02-0CT-2000;
02-0CT-2000;
02-0CT-2000;
13-0CT-2000;
13-0CT-2000;
20-0CT-2000;
                             20-OCT-2000;
20-OCT-2000;
20-OCT-2000;
                                    20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
                                                        -NOV-2000;
-NOV-2000;
                                                             -NOV-2000;
```

WPI; 2001-483426/52

```
AAK54951 to AAK64702 encode the human immune/haematopoletic antigen (I)

amino acid sequences given in AAM82170 to AAM91921. (I) have cytostatic
activity, and can be used in gene therapy and vaccine production. (I)
proteins and polynucleotides may be used in the prevention, diagnosis and
treatment of diseases associated with inappropriate (I) expression. For
example, they may be used to treat disorders associated with decreased
expression by rectifying mutations or deletions in a patient's genome
that affect the activity of (I) by expressing inactive proteins or to
supplement the patients own production of (I). Additionally, (I)
co polynucleotides may be used to produce the secreted (I), by inserting
the nucleic acids into a host cell and culturing the cell to express the
protein. (I) proteins and polynucleotides may be used to prevent,
diagnose and treat immune/haematopoletic-related diseases, especially
conners and cancer metastases of haematopoletic-derived cells. AAK64703
co AAK87694 represent human immune/haematopoletic antigen genomic
sequences from the present invention. AAK54912 to AAK84950 and AAM82169
crepresent sequences used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              525 AACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCAGGTGTTCTGTC 584
                 Nucleic acids encoding human immune/hematopoietic antigen polypeptides, useful for preventing, diagnosing and/or treating cancers and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New mammalian receptor proteins related to cytokine receptors, useful for regulating cell development and for diagnosis and treatment of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human; immunomodulator; DNAX cytokine receptor subunit 3.2; DCRS3.2;
therapy; immunological disorder; drug screening; cell development;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human DNAX cytokine receptor subunit 3.2 reverse translational DNA.
                                                                                                  Disclosure; SEQ ID NO 30388; 3071pp + Sequence Listing; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.0%; Score 35.8; DB 22; Length 5666; 65.8%; Pred. No. 2.1; tive 0; Mismatches 27; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 5666 BP; 1450 A; 1247 C; 1332 G; 1637 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4468 CTCTGGGGAAGACTGGCTT 4450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAD06413 standard; DNA; 1614 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      585 IGCIGACGCAGACGIGCIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0443060.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-NOV-2000; 2000WO-US31363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10-AUG-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 65.8<sup>†</sup>
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (SCHE ) SCHERING CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           chromosome 16p12; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-343800/36.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200136467-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25-MAY-2001.
                                                             metastasis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gorman DM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAD06413;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
```

```
AAS59545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ğ
                                                 The present sequence is human DNAX cytokine receptor subunit 3.2

(DCRS3.2) reverse translational DNA. DCRS3 gene is located on chromosome leppla. Cytokine receptors, fragments and antibodies are useful for treating immunological disorders. DCRS3 (50R), DCRS4 (cytor) cor fragments are useful in drug screening to identify compounds having binding affinity to the receptor subunit. Modulators of DCRS are useful for modulating the physicology or development of a cell or tissue culture cells. A purified DCRS is useful as a reagent to detect antibodies generated in response to the presence of elevated levels of expression, or immunological disorders which lead to production of antibody to the endogenous receptor. Cytokine receptor sequences are useful as probes for detecting levels of the cytokine receptor in patients suspected of having an immunological disorder. Antibodies have therapeutic value, are useful as potent antagonist, in detecting or quantifying ligands, for isolating DCRS proteins and peptides, to screen expression libraries for particular expression products, to raise anti-idiotypic antibodies and for detecting or diagnoshiny various immunological conditions related to expression of the protein or cells which express the protein.
                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1003 GTCCTGCTATATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCC 1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .063 CGATAATCCGTCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAA 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GIGGAAYYINCAYCCNWSNACNYINACNYTNACNTGGCARGAYCARTAYGARGARYTNAA 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPS-like enzyme; glucosyl donor substrate; sucrose; sucrose phosphate; tobacco; rice; carbon partitioning; growth response; CDP-glucose-dependent sucrose-6' -phosphate synthesis; sucrose-6' -phosphate; nucleoside diphosphate glucose;
                                                                                                                                                                                                                                                                                                                                                                                                                                 883 GTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTCTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           943 GGGTGATGTAGGTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     177 RGAYGARGCNACNWSNTGYWSNYTNCAYMGNWSNGCNCAYAAYGCNACNCAYGCNACNTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product= "sucrose phosphate synthase-like enzyme"
                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                   % Natch 3.0%; Score 35.6; DB 22; Length 1614; Local Similarity 30.3%; Pred. No. 1.2; Local Similarity 34; Mismatches 134; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               enzyme;
                                                                                                                                                                                                                                                                                                                                          Sequence 1614 BP; 206 A; 189 C; 302 G; 202 T; 715 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA encoding a sucrose phosphate synthase-like enzyme.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sucrose biosynthesis; sucrose phosphate synthase-like
                            Disclosure; Page 18; 124pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers 1..2163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAZ61263 standard; DNA; 2163 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-MAY-2000 (first entry)
immunological disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       fructose-6-phosphate;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Synechocystis sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A 1123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1123
                                                                                                                                                                                                                                                                                                                                                                                                                                                             117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAZ61263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 357
                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAZ61263
õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
```

```
The present sequence encodes a sucrose biosynthesis polypeptide which has a sucrose phosphate synthase-like (SPS-like) activity. The SPS-like polypeptide does not utilize UDP-glucose as a sole glucosyl donor cubstrate. Probes and amplification primers based on the SPS-like polynucleotide can be used to isolate or detect nucleic acid molecules which encode a protein with SPS-like activity. The SPS-like polynucleotide can be used to alter the level sucrose or sucrose phosphates in a plant cell, tissue, or organ or a higher plant, especially tobacco or rice. The SPS-like polynucleotide can also be used to alter the carbon partitioning, development and/or growth response of a plant, increase the level of UDP-, GDP-, ADP- or CDP-glucose-dependent sucrose-6 phosphate synthesis, and to produce sucrose-6 phosphate from a nucleoside diphosphate glucose other than UDP-glucose in a plant cell. Recombinant SPS-like activity expressed in E. coll shows a broader specificity than the higher plant SPS enzymes, in particular utilising ADP-, GDP- or UDP-glucose as a glucosyl donor to fructose-6-phosphate.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1169 CCATTCTGACAATTTTGATAATATCCACCGGCCCCCCATCCTCCGTGGCCACAATGGGC 1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             375 CCIGICACATICITCIGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGC 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 435 ACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATG 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SAPHO syndrome; synovitis; acne; pustulosis; hypertosis; osteomyelitis; uveitis; endophthalmitis; bone; joint; central nervous system; ELISA; inflammatory lesion; acne vulgaris; enzyme linked immunosorbent assay; dermatological; osteopathic; neuroprotectant; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Novel nucleic acids encoding sucrose phosphate synthase-like enzyme useful for altering the level of sucrose or sucrose phosphates and altering carbon partitioning in plants
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 3.0%; Score 35.6; DB 21; Length 2163; Best Local Similarity 54.6%; Pred. No. 1.4; Matches 71; Conservative 0; Mismatches 59; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Propionibacterium acnes immunogenic protein encoding DNA #40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 2163 BP; 557 A; 517 C; 543 G; 546 T; 0 other;
                                                                                                                                                                                                                                                                                                                                         (CSIR ) COMMONWEALTH SCI IND & RES ORG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 16; Page 91-95; 99pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAS59545 standard; DNA; 61313 BP.
                                                                                                                                                                99WO-AU00557
                                                                                                                                                                                                                                                    98AU-0004578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1049 ATAMATACTC 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               495 ACCACCACAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2000-182220/16
                                                                                                                                                                                                                                                                                                                                                                                                                             Furbank R, Lunn J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P-PSDB; AAY69235
WO200003006-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13-FEB-2002
                                                                                                                                                                                                                                                    08-JUL-1998;
                                                                                                                                                                    08-JUL-1999;
                                                                                20-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAS59545;
```

```
Monitoring differential expression of several genes in first Bacillus cell relative to expression of same genes in one or more second Bacillus cells, by using substrate containing Bacillus genomic
                                                                             Differential gene expression; genomic sequenced tag; GST; altered culture condition; environmental stress; physiological provocation; ds.
                                       Bacillus licheniformis genomic sequence tag (GST) #1702.
                                                                                                                                                                                                                                                                                                                                                                                  (NOVO ) NOVOZYMES BIOTECH INC. (NOVO ) NOVOZYMES AS.
                                                                                                                                                                                                                                                                                 05-OCT-2001; 2001WO-US31437
                                                                                                                                                                                                                                                                                                                       06-0CT-2000; 2000US-0680598.
27-MAR-2001; 2001US-279526P.
13-AUG-2002 (first entry)
                                                                                                                                                          Sacillus licheniformis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4PI; 2002-416684/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequenced tag array
                                                                                                                                                                                                    40200229113-A2.
                                                                                                                                                                                                                                            11-APR-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Berka R,
    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Propionibacterium accessions represent the incourse associated by sequences are used in the treatment, prevention and diagnosis of medical conditions caused by P. acnes. The disorders include SAPHO syndrome (synovitis, acne, pustulosis, hypertosis and categorists of medical conditions caused by P. acnes. The disorders include SAPHO syndrome (synovitis, acne, pustulosis, hypertosis and categorists of steemyelitis), uveitis and endophthalmitis. P. acnes is also involved in infections of bone, joints and the central nervous system, however it is particularly involved in the inflammatory lesions associated with acne vulgaris. A method for detecting the presence or absence of P. acnes in a patient comprises contacting a sample with a binding agent that binds to the proteins of the invention and determining the amount of bound protein in the sample. The polypeptides may be used as antigens in the production of antibodies specific for P. acnes proteins. These antibodies can be used to downregulate expression and activity of P. acnes polypeptides and determining P. acnes infections. The antibodies spoil in ANU49156-AANU9883 and AANU57523.

Colypeptides shown in AANU49156-AANU9883 and AANU57522-AANU5753.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at the printed specification, but was obtained in electronic format directly from WIPO at the printed in the proposed 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   54049 GCAATAACGTCACCACGGGGGACGATCAAGCCGGTAACACCATCCTCGACGACCTCTGCC 53990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           345 GCAGACACCCCCCCCCCCGGGTAACAGCGTCCCTGTCATTCTTCTGAATGACATCAGGG 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         405 ATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACC 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                       polypeptides and nucleic acids useful for diagnosing infections, especially useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 3.0%; Score 35.4; DB 23; Length 61313; Best Local Similarity 53.2%; Pred. No. 11; Matches 75; Conservative 0; Mismatches 66; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 61313 BP; 10582 A; 18175 C; 19919 G; 12633 T; 4 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequences AAS59506-AAS59804 represent DNA molecules encoding
                                                                                                                                                                                                                                                                                                    Mitcham JL, Wang SS, Bhatia A;
Jen S, Carter D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 1; SEQ ID No 40; 1069pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                53929 ACTCCGAAAGACTCCGAATCC 53909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          465 ATACCAAACGCTTCATTTTCC 485
                                                                                                                                                                           21-APR-2000; 2000US-199047P.
02-JUN-2000; 2000US-208841P.
07-JUL-2000; 2000US-216747P.
                                                                                                                                     20-APR-2001; 2001WO-US12865
                                                                                                                                                                                                                                                                                                Skeiky YAW, Persing DH, M. L'maisonneuve J, Zhang Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                              treating acne vulgaris -
                  Propionibacterium acnes.
                                                                                                                                                                                                                                                                                                                                                                                                  Propionibacterium acnes vaccinating against and
                                                                                                                                                                                                                                                             (CORI-) CORIXA CORP.
                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-616774/71
                                                        WO200181581-A2
                                                                                                  01-NOV-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         å
```

Clausen IG;

```
The invention describes a method of monitoring differential expression of genes in a first Bacillus cell relative to expression of the genes in coher Bacillus cells. Comprising hybridising labelled nucleic acid probes is labelled nucleic acid probes acidlated acid probes acidlus cells to a substrate containing array of Bacillus gene expression by an observed hybridisation reporter signal of a spot in the array. The method is useful for measuring the expression of genes in a first Bacillus cells the method is useful for mentoring to more or more second Bacillus cells. The method is useful for monitoring genes in one or more second Bacillus cells. The method is useful for monitoring genes, identifying possible functions of unknown open reading frames and monitoring gene copy number variation and stability. Monitoring changes in expression of genes may be used to provide a representation of the way in which Bacillus cells adapt to changes in culture conditions.

The expression of genes may be used to provide a representation of the way in which Bacillus cells adapt to changes in culture conditions, cenvironmental stress or other physiological provocation. Extensive equals one gene or one open reading frame, since sequence information is available. This sequence represents a genomic sequence tag (GST) used in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  907 GGTTGTCCGCTGCAACGCCGGCCTTTCCTGAACGAGGAGGTTCATGCCGA 848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                352 CATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             967 CGTCTCCCTGCGGAACCAAAAATCCGTTCACGCCCTCTTGAATGACTTCCCGGTGTCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               412 CCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 35; DB 24; Length 1135;
Pred. No. 1.5;
0; Mismatches 80; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 472 ACGUTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1135 BP; 322 A; 263 C; 298 G; 252 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ftp.wipo.int/pub/published_pct_sequences.
Claim 4; SEQ ID NO 1702; 200pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.0%;
50.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 50.50,
Conservative
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

ABK74411/c ID ABK74411 standard; DNA; 1135 BP.

RESULT 42

ABK74411;

SKKK

AAK81290 standard; DNA; 21410 BP.

AAK81290

07-NOV-2001 (first entry)

AAK81290;

847 GCCCTTCCCTGATGCTTGAGGCGACAGACACGTCTGCAAGCTG 805

g

```
139 CCGGAAAACCGCTGAACAAAATTCGGGCTGAAAAGAGGATCCGCCGTTATCTGTTGCATT 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              199 TCCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACC 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The present sequence is one of a large number of 5' ESTS derived from mRNAs encoding secreted proteins. No ORF has yet been conclusively identified within the present sequence. The 5' ESTS were prepared from total human RNAs or polyA+ RNAs derived from 30 different tissues. EST sequences usually correspond mainly to the 3' untranslated region (UTR) of the mRNA because they are often obtained from oilgo-dr primed cDNA libraries. Such ESTs are not well suited for isolating cDNA sequences con the 5' ends of mRNAs and even in those cases where longer CDNA sequences have been obtained, the full 5' UTR is rarely included. S' ESTs are derived from mRNAs with intext 5' ends and can therefore be used to obtain full length cDNAs and genomic DNAs. 5' ESTs are also used in diagnostic, forensic, gene therapy and chromosome mapping procedures. They are used to obtain upstream regulatory sequences and to design
                                                                                                                                                                                 expressed sequence tag; secreted protein; cDNA isolation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New nucleic acid that is a 5' expressed sequence tag (5' EST) for obtaining cDNAs and genomic DNAs that correspond to 5'ESTs and for diagnostic, forensic, gene therapy and chromosome mapping procedures
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 34.6; DB 21; Length 355;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           259 GGTACTCAATATCTTCTGGCGCTGGCTGCCATCATCC 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 355 BP; 90 A; 67 C; 68 G; 119 T; 11 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16;
                                                                                                                                              Human secreted protein 5' EST, SEQ ID NO: 26063.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Dumas Milne Edwards J, Duclert A, Giordano J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 1; SEQ ID 26063; 71pp + CD-ROM; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No.
                                                                                                                                                                                                      gene therapy; chromosome mapping; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         expression and secretion vectors.
                                    AAC21988 standard; cDNA; 355 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.9%;
                                                                                                                                                                                                                                                                                                                                                  21-FEB-2000; 2000EP-0200610.
                                                                                                                                                                                                                                                                                                                                                                                     99US-0122487
                                                                                                         06-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 48.4
Matches 77; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2000-500381/45.
                                                                                                                                                                                                                                                                                                                                                                                                                          (GEST ) GENSET
                                                                                                                                                                                 Human; 5' EST;
                                                                                                                                                                                                                                          Homo sapiens.
                                                                                                                                                                                                                                                                             EP1033401-A2
                                                                                                                                                                                                                                                                                                                                                                                     26-FEB-1999;
                                                                                                                                                                                                                                                                                                                06-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                       AAC21988;
RESULT 43
AAC21988/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
```

```
Human; immune; haematopoietic; immune/haematopoietic antigen; cancer; cytostatic; gene therapy; vaccine; metastasis; ds.
                       Human immune/haematopoietic antigen genomic sequence SEQ ID NO:36102.
                                                                                                                                                                                                                                                                                                 2000US-0232397
                                                                    17-JAN-2001; 2001WO-US01354
                                                    WO200157182-A2
                                            Homo sapiens
                                                                                                                                                                                           14-AUG-2000;
                                                                                                                                                                                                                        23-AUG-2000;
                                                                                         02-MAR-2000
                                                                                                         19-MAY-2000
                                                                                                                                                              4-AUG-2000
                                                                                                                                                                          4-AUG-2000
                                                                                                                                                                                       14-AUG-2000
                                                                                                                                                                              14-AUG-2000
```

Gaps

RESULT 44 à

```
25 - SEP - 2000; 25 - SEP - 2000; 25 - SEP - 2000; 26 - SEP - 2000; 27 - SEP - 2000; 29 - SEP - 2000; 20 - S
                                                                                                   14-SEP-2000;
21-SEP-2000;
                                                   14-SEP-2000;
14-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17-NOV-2000;
17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17-NOV-2000
17-NOV-2000
```

```
AMANASI TO AMANASIVE anticore the number number concepted and to activity, and can be used in AAM8210 to AAM91921. (I) have cytostatic activity, and can be used in gene therapy and vaccine production. (I) proteins and polynucleotides may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate (I) expression. For example, they may be used to treat disorders associated with decreased expression by rectifying mutations or deletions in a patient's genome that affect the activity of (I) by expressing inactive proteins or to supplement the patients own production of (I). Additionally, (I) complement the patients own production of (I). Additionally, (I) colynucleotides may be used to produce the secreted (I), by inserting the confers and cance metastases of haematopoletic-related diseases, especially concern and treat immune/haematopoletic-derived cells. AAK64703 concerns and cancer metastases of haematopoletic antigen genomic concerns and cancer metastases of haematopoletic antigen genomic sequences from the present invention. AAK84942 to AAK8959 and AAM82169 cepresent invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9519 AGCIGAGAICAIGCCAIIGCACICCAGCCIGGGCAACAAGAGIGAAACICCAICICAAAA 9578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56 AGCTGAAAGTAGGCCTGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAA 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      116 CAATGTGATAAATTACTCCGTTACCGGAAAACCGCTGAACAAATTCGGGCTGAAAAGAG 175
                                                                                                                                                                                                                                                                                                                                     Nucleic acids encoding human immune/hematopoietic antigen polypeptides, useful for preventing, diagnosing and/or treating cancers and metastasis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAK54951 to AAK64702 encode the human immune/haematopoietic antigen (I)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; tyrosine phosphatase subfamily; cellular process modulation; phosphatase; chromosome 14; single nucleotide polymorphism; SNP; variant; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                 Disclosure; SEQ ID NO 36102; 3071pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 21410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 21410 BP; 6408 A; 3742 C; 4370 G; 6890 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 2.9%; Score 34.2; DB 22; Length Best Local Similarity 52.4%; Pred. No. 16; Matches 75; Conservative 0; Mismatches 68; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 176 GATCCGCCGTTATCTGTTGCATT 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAD15256 standard; DNA; 74962 BP
                                                                                                                                                                                                                                                                     Ruben SM;
                                                                                                                                                                                                                          (HUMA-) HUMAN GENOME SCI INC
                                                                                              08-DEC-2000; 2000US-0251869
08-DEC-2000; 2000US-0251989
08-DEC-2000; 2000US-0251990
11-DEC-2000; 2000US-0254097
                                                                                                                                                                                   05-JAN-2001; 2001US-0259678
                                                                               2000US-0251868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-NOV-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human phosphatase gene.
                                                                                                                                                                                                                                                                Rosen CA, Barash SC,
                                                                                                                                                                                                                                                                                                           WPI; 2001-483426/52.
                                    06-DEC-2000;
08-DEC-2000;
08-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAD15256;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAD15256
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         å
```

ö

```
Zea mays subsp. mays.
                       Drmanac RT, Liu C,
                                             WPI; 2001-639362/73.
  (HYSE-) HYSEQ INC.
                                                         P-PSDB; ABG06403
                                                                                                              biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAC43719;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAC43719,
   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                        56 AGCIGAAAGTAGGCCTGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAA 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                    116 CAATGTGATAAATTACTCCGTTACCGGAAAACCGCTGAACAAATTCGGGCTGAAAAGAG 175
                                                                                                                                                                                                              their polynucleotides. The phosphatase proteins are related to the protein tyrosine phosphatase subfamily. The peptides of the invention are useful for identifying a modulator of phosphatase peptide expression. Modulators of phosphatase peptide are useful for treating diseases or conditions mediated by a human phosphatase protein. The phosphatase gene of the present invention can be expressed in yeast to identify possible interactors and substrates. Artificially synthesised enzymes or derived peptides can be used to activate or inhibit cellular processes modulated by this phosphatase. The present sequence is a human gene encoding phosphatase protein. This gene is located on human chromosome 14.
                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human; chromosome mapping; gene mapping; gene therapy; forensic; food supplement; medical imaging; diagnostic; genetic disorder; ss.
                                                                                                                                             New phosphatase peptide for the screening of modulators useful for
                                                                                                                                                                                                     The present invention provides phosphatase peptides, proteins and their polynucleotides. The phosphatase proteins are related to the
                                                                                                                                                                                                                                                                                                                                        Sequence 74962 BP; 21639 A; 14055 C; 14307 G; 24824 T; 137 other;
                                                                                                                                                                                                                                                                                                                                                              DB 22; Length 74962;
                                                                                                                                                                                                                                                                                                                                                                                   68; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA encoding novel human diagnostic protein #6394.
                                                                                      Di Francesco V, Beasley EM;
                                                                                                                                                                                                                                                                                                                                                            2.9%; Score 34.2; D
52.4%; Pred. No. 32;
Lve 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5691 GAAACTCTGTCATTTGTGACAAT 5713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                176 GATCCGCCGTTATCTGTTGCATT 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAS70590/c
ID AAS70590 standard; cDNA; 645 BP.
                                                                                                                                                                               Claim 4; Fig 3; 109pp; English.
                                                                                                                                                                                                                                                                                                                                                                      52.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-MAR-2001; 2001WO-US08631.
          12-FEB-2001; 2001WO-US04432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0540217
2000US-0649167
                                14-FEB-2000; 2000US-0182194
11-OCT-2000; 2000US-0685853
                                                                                                                                                        treating related disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 52.4
Matches 75; Conservative
                                                                                       Ketchum KA,
                                                                                                             WPI; 2001-529910/58
                                                                  (PEKE ) PE CORP NY
                                                                                                                        P-PSDB; AAE08552.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200175067-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31-MAR-2000;
23-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAS70590;
                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                       Wei M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 46
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
```

```
The invention relates to isolated polynucleotide (I) and polypeptide (II) sequences. (I) is useful as hybridisation probes, polypeptide (II) sequences. (I) is useful as hybridisation probes, and gene mapping, and in recombinant production of (II). The and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags for identifying expressed genes. (I) is useful in gene therapy techniques to restore normal activity of (II) or to treat disease states involving (II). (II) and its binding antibodies against it, detecting or quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical imaging of sites expressing (II). (I) and (II) are useful for treating disorders involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and call sequences. AAS&4197-AAS$4154 represent novel human diagnostic coding sequences of the invention coding appear in the printed coding sequences of the invention format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               219 AGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATATCTTCTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                          New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein identification; signal transduction pathway; metabolic;
pathway; promoter; termination sequence; corn; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hybridisation assay; genetic mapping; gene expression control;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.9%; Score 34; DB 23; Length 645; 61.1%; Pred. No. 2.3; Live 0; Mismatches 35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 645 BP; 150 A; 182 C; 189 G; 124 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           at ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    279 GCGCTGCCTGCCATCATCCGGAAGCGTTCC 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 1; SEQ ID No 6394; 103pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zea mays DNA fragment SEQ ID NO: 40258.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAC43719 standard; DNA; 1586 BP
Tang YT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-FEB-2000; 2000EP-0301439.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.99
Best Local Similarity 61.19
Matches 55; Conservative
```

990S-0121825. 99US-0123180. 99US-0123548. 99US-0126264. 99US-0126264. 99US-0126264. 99US-012028134. 99US-0128134. 99US-0128134. 99US-0130810. 99US-0130810. 99US-0130810. 99US-0130810. 99US-0130810. 99US-0130810. 99US-0130810. 99US-0132486. 99US-0132486. 99US-0132486. 99US-0132486. 99US-0132486. 99US-0132486. 99US-0132487. 99US-0132487. 99US-0132487. 99US-0132487. 99US-013283. 99US-013283. 99US-0133283. 99US-0133283. 99US-0133283. 99US-0133283. 99US-0133283. 99US-0133283. 99US-0133383. 99US-0133383.	NGS - 0.13945; NGS - 0.13945; NGS - 0.13945; NGS - 0.13945; NGS - 0.13946; NGS - 0.14946; NGS - 0.14296; NGS - 0.14296;
25-FEB-1999; 05-MAR-1999; 23-MAR-1999; 23-MAR-1999; 24-MAR-1999; 06-ARR-1999; 16-ARR-1999; 16-ARR-1999; 16-ARR-1999; 23-ARR-1999; 23-ARR-1999; 23-ARR-1999; 04-MAY-1999; 05-MAY-1999; 06-MAY-1999; 14-MAY-1999; 14-MAY-1999; 14-MAY-1999; 14-MAY-1999; 14-MAY-1999; 25-MAY-1999; 27-MAY-1999; 27-MAY-1999; 28-MAY-1999; 28-MAY-1999; 28-MAY-1999; 01-JUN-1999; 01-JUN-1999; 01-JUN-1999; 01-JUN-1999; 10-JUN-1999; 11-JUN-1999; 01-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999; 11-JUN-1999;	2-70N-1999 70N-
\$\text{\tint{\text{\tint{\text{\ti}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tint{\text{\ti}}\tint{\text{\text{\text{\text{\text{\ti}}\tint{\text{\text{\ti}\tint{\text{\text{\text{\text{\ti}\text{\text{\tinte\tint	2

PR 13-JUL-1999; 99US-0144342.
PR 14-JUL-1999; 99US-0144085.
PR 16-JUL-1999; 99US-0144086.
PR 16-JUL-1999; 99US-0144086.
PR 16-JUL-1999; 99US-0144086.
PR 16-JUL-1999; 99US-0144331.
PR 19-JUL-1999; 99US-0144331.
PR 19-JUL-1999; 99US-0144332.
PR 20-JUL-1999; 99US-0144332.
PR 20-JUL-1999; 99US-0144332.
PR 21-JUL-1999; 99US-0144332.
PR 22-JUL-1999; 99US-014508.
PR 22-JUL-1999; 99US-014508.
PR 22-JUL-1999; 99US-014508.
PR 22-JUL-1999; 99US-014508.
PR 23-JUL-1999; 99US-014518.
PR 23-JUL-1999; 99US-014918.
PR 23-JUL-1999; 99US-014918.
PR 23-JUL-1999; 99US-014918.
PR 23-JUL-1999; 99US-014918.
PR 23-JUL-1999; 99US-015106.
PR 23-JUL-1999; 99US-015106.
PR 23-JUL-1999; 99US-015108.
PR 23-JUL-1999; 99US-015109.
PR 23-JUL-1999; 99US-015209.
PR 23-JUL-1999; 99US-015209.
PR 23-JUL-1999; 99US-015209.
PR 23-JUL-1999; 99US-015209.

```
17-JAN-2001; 2001WO-US01354
   09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           822 CCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGATGCGCCATCATG 881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            762 GCGTGGATATGCAGGGGTAACGGTCGCATGGCTTCATTATGCAATGCGGGCCCAGTCGAAA 821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; Immune; haematopoietic; immune/haematopoietic antigen; cancer; cytostatic; gene therapy; vaccine; metastasis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human immune/haematopoietic antigen encoding cDNA SEQ ID NO:5277
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                             Score 34; DB 21; Length 1586;
Pred. No. 4;
2; Mismatches 92; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAK60217 standard; cDNA; 333 BP.
990S-0157117
990S-0157865
990S-0158029
990S-0158029
990S-0158029
990S-0159293
990S-0159294
990S-0159309
990S-0159310
990S-0159310
990S-0160767
990S-0161406
990S-0161406
990S-0161360
990S-0161360
                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 2.9%;
Best Local Similarity 48.4%;
Matches 88; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              06-NOV-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CG 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           882 GG 883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200157182-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAK60217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 48
AAK60217
```

용 ò Nucleic acids encoding human immune/hematopoietic antigen polypeptides, useful for preventing, diagnosing and/or treating cancers and metastasis -

P-PSDB; AAM87436.

Claim 1; SEQ ID NO 5277; 3071pp + Sequence Listing; English.

```
(HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-483426/52
                                                                                                                         08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
               02-0CT-2000;
02-0CT-2000;
02-0CT-2000;
02-0CT-2000;
13-0CT-2000;
13-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
20-0CT-2000;
                                                                                    20-OCT-2000;
20-OCT-2000;
01-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                        Rosen CA,
^{1}
```

```
AAK54951 to AAK64702 encode the human immune/haematopoietic antigen (I)
amino acid sequences given in AAM82170 to AAM91921. (I) have cytostatic
cartivity, and can be used in gene therapy and vaccine production. (I)
cartivity, and can be used in gene therapy and vaccine production. (I)
proteins and polypuclectides may be used in the prevention, diagnosis and
cexample, they may be used to treat disorders associated with decreased
expression by rectifying mutations or deletions in a patient's genome
that affect the activity of (I) by expressing inactive proteins or to
supplement the patients own production of (I). Additionally, (I)
polynuclectides may be used to produce the secreted (I), by inserting
colynuclectides may be used to produce the secreted (I), by inserting
the nucleic acids into a host cell and culturing the cell to express the
concers and cancer metastases of haematopoletic-derived cells. AAK64703
concers and cancer metastases of haematopoletic antigen genomia numnue/haematopoletic antigen genomia pence to protein the present human immune/maematopoletic antigen genomia pence in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141 GGAAAACCGCTGAACAAAATTCGGGCTGAAAAGAGGATCCGCCGTTATCTGTTGCATTTC 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human; prostate cancer; cytostatic; carcinogen; pharmacodyanamic marker; pharmacogenomic marker; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                201 CCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99 GGAAAGAGATAGAGGAAAGGTGGTGTTGCAATCAGACTGGACAGCTTCATGTCCCTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 33.8; DB 22; Length 333;
Pred. No. 1.9;
2; Mismatches 64; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 333 BP; 71 A; 88 C; 77 G; 93 T; 4 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human prostate expression marker cDNA 48858.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABV48867 standard; cDNA; 474 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           219 CCCTCTTCATCTCATCT 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         261 TACTCAATATCTTCTCT 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-207454P.
2000US-211314P.
2000US-219007P.
2000US-255281P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 2.9%;
Best Local Similarity 51.8%;
Matches 71; Conservative 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20-FEB-2001; 2001WO-US05171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-SEP-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200160860-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09-JUN-2000;
18-JUL-2000;
13-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABV48867;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABV48867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

```
Comings DE;
 ά
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                          The invention relates to an isolated nucleic acid molecule (I) comprising a nucleotide sequence given in Tables 1-9 (ABV00010-ABV62213) of the specification or its complement. (I) is useful for:
(a) assessing whether a patient is afflicted with prostate cancer;
(b) monitoring the progression of prostate cancer in a patient;
(c) assessing the efficacy of a test compound to inhibit prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                             selecting a composition for inhibiting prostate cancer in a patient; assessing the prostate cell carcinogenic potential of a compound; determining whether prostate cancer has metastasized in a patient; assessing the aggressiveness or indolence of prostate cancer in a
                                                                                                                                                                                                                                                                                                                                                                                                                     7 GAGATGGAAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAGTA 66
                                                                     Novel isolated nucleic acid molecule associated with cancerous state of prostate cells and correlating with presence of prostate cancer, useful for detecting presence of prostate cancer -

    (c) assessing the efficacy of a test compound to inhibit prostate
cancer in a patient;
    (d) assessing the efficacy of a therapy for inhibiting prostate cancer
in a patient;

                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67 GGCCTGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGA 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     298 GCCCTATAGTGAGTCGTATTACGCGCGCTCACTGGCCGTTGTTTACAACGTCGTGA 354
                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps

    is also useful as a pharmacodyanamic or pharmacogenomic marker.

                                                                                                                                                                                                                                                                                                                                                                    2.9%; Score 33.8; DB 23; Length 474; 55.6%; Pred. No. 2.3; tive 0; Mismatches 52; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pourette Syndrome; TDO2; kyneurenine formation; autism;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human Tryptophan-2,3-dioxygenase coding sequence HTO3.
                                                                                                                                                                                                                                                                                                                                             Sequence 474 BP; 140 A; 114 C; 118 G; 102 T; 0 other;
(MILL-) MILLENNIUM PREDICTIVE MEDICINE INC.
                                                                                                                     Claim 1; Page 9566-9567; 11750pp; English
                       Endege WO, Monahan JE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAQ21621/c
ID AAQ21621 standard; DNA; 1647 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  91WO-US05441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            91US-0715660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900S-0562596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag= a
34..1008
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                                              65; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (CITY ) CITY OF HOPE.
                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                              WPI; 2001-662795/76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  02-AUG-1991;
                       Schlegel R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-JUN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14-JUN-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-AUG-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   W09202637-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20-FEB-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAQ21621;
                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                          oatient;
                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SDS
                                                                                                                                                                                                                                                         (F)
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
```

```
both described as "HTO3" (see also AAQ1620). They are identical through the first 741 nucleotides of AAQ1620 before the much longer sequence AAQ1621 begins to diverge. The human TDO2 gene sequence, including regulatory sequences, is also given in the specification, as is a genomic TDO2 sequence which includes the introns (see AAQ1623 and AAQ1624, respectively). The sequence of the open reading frame in these sequences differs from AAQ16121 (and AAQ1620) by the deletion of a single adenine residue (i.e. from the run of 8 A's at position these sequences differs from AAQ1621 (and AAQ1621). Yet another Figure, which illustrates the degree of homology between HTO3 and the rat TDO2 sequence, also lacks the 8th Adenine, suggesting that the "extra" A in both AAQ1621 represents a typographical error. The patent specification does not contain any discussion of the apparent confidences and includes only the minimum description of each of the sequences. Consequently, the significance of an in frame the remination codon within the longest CDS of HTO3 is not known.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1013 ATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCG 1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1073 TCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATC 1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     285 CTTAAACCAGAGTTCATAAGCTTGATGAGATAAAAAAGATGTTCATCATGGATTTT 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                  Diagnosis of Tourette syndrome and associated disorders – by detecting mutation in tryptophan oxygenase-indole:amine oxygenase
                                                                                                                                                                                                                                                                                                                                                                                  Clone HTO3 was isolated from a human liver mRNA-derived CDNA library screened with a rat liver tryptophan oxygenase CDNA probe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 33.8; DB 13; Length 1647; Pred. No. 4.7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e AAQ21522).
specification includes two different sequences which are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1647 BP; 556 A; 292 C; 327 G; 472 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 2.9%; Score 33.8; DE Best Local Similarity 53.4%; Pred. No. 4.7; Matches 71; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Search completed: June 18, 2003, 02:09:39
Job time: 223.603 secs
                                                                                                                                                                                                                                                                                                         Disclosure; Fig 5A; 45pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1133 ATGCCCTCTTTT 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                225 ATTTCCTTTGTT 213
WPI; 1992-080090/10.
                                                                                                                                                                                                                             genes and prods.
                                                 P-PSDB; AAR21547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (see AAQ21622)
```

ö

THIS PAGE BLANK (USPTO)

BQ763870 EBro0: AU100720 AU1007 BH468052 BOHOUT	AW042265 614026 AY112421 Zea ma	BQ087067 CT1_9_106 BH77873 Exmb013f0 BH388561 AG-ND-130 BG330039 602428912	BI744669 rk89h09 BG605346 WH22331 BJ292385 BJ2923 C20457 C20457 R1	AL192027 Tetraod AV784670 AV784671 BG840188 MEST8-G	BF586903 FM1_31_ BI968888 GM83000	BI498039 sag15c0 BMI43281 saj42b1	AVB30808 AVB3080 AL245650 Tetraod BQ878757 AGENCOU	AL108088 Drosophil AW453731 zeh10506 BG565743 602589078	AV987761 AV98776 AL078714 Drosoph	BG538455 6025671 AW509231 sh92h11	MUSITOS/ SAPOSGU. AW459606 Sh89C12 AI496532 Sb13a03.	AW620859 sj47el1 AQ785148 HS_3159	AU002430 HS_3433 BE440931 sp49912 AW279073 sq07d10	BM092322 sahllel(BI427174 sah77c0)	B142/022 Sag10dU BQ630772 Sap3lal(B1787127 Sag71f1	AW397142 sg67d08 BQ629541 saq03d02	AW164393 se71h10 BG618482 60264567	AL104599 Drosophi AI229512 EST22620	BE303804 UL-K-C4 BM860712 fy53f12 AV358623 AV35862	AQ078429 CIT-HSP BF404709 UI-R-CA	BB699898 BB69989 BB699994 BB69999	BJ449621 BJ44962 AV906979 AV90697 BJ450007 BJ45000	BP017181 BP017188 BP017188 BP01718	BL458490 BJ458499 BE279974 G0115691	AQI64201 HS_322L BQ562752 H4077G00 RR662428 RR662428	BQ715820 AGENCOUR	AK014488 Mus muscu AQ231338 HS_2053_A	AL635/69 AL635/69 BF273334 GA_ED001 BI821211 603034921
BQ763870 0100720 3H468052	AW042265 AY112421	BQ087067 BH778732 BH388561 BG330039	BI744669 BG605346 BJ292385 220457	CNS02D5U AV784670 3G840188	BF586903 3I968888	BI498039 BM143281	AV836868 CNS031JD 8Q878757	CNS017IM AW453731 3G565743	AV987761 SNS00LT2	BG538455 AW509231	AW459606 L496532	AW620859 AQ785148	BE440931 W279073	BM092322 BI427174	B142/022 BQ630772 31787127	AW397142 BQ629541	AW164393 BG618482	CNS014TP 1229512	BK860712 W358623	AQ078429 BF404709	BB699898 BB699994	BJ449621 RV906979	BP017181	BE279974	BQ562752 BB662428	BQ715820	AK014488 AQ231338	D635/69 BF273334 BI821211
9 17 17	121	17 17 17 17 17 17 17 17 17 17 17 17 17 1	13 14	12	13	13	17	10 12	10	101	126	17	122	13	14	17	12 10	9 2	141	17	201	13	14.	101	141	14	11	13
495 714 866	533	645 461 769 926	509 632 479 545	756 649 501	540 672	516	849 974	948 320 831	582 1101	432	446 478	507	523	540	581 584	585 586	636	319	557 248	254	412	438 520 520	545	650	646 663	972	3321	712 793
42.2 41.6 41.6	00	39.7 38.6 38.6	7.7	37.4 37.2 36.8	ဖဖ	യ	വവ	35.6 35.4 35.4	വവ	4 4	34.8 34.8	444	444	444	* * *	44	44.	* *	* 4 4	44	34.4 34.4	34.4 4.4 4.4		444			ું જે ત	3 3 4 4 4 4
υ υ ———————————————————————————————————	υ	000	0000	O —	υ	00	0	υ υ	υ	000		O	00	000	000		00	U	00		υυ	000		v		υ υ —	O	U
		٠																					,					
1.6 mpugen Ltd.		h time 1249.12 Seconds hout alignments) 2.305 Million cell updates/sec	.ttttactttttctctgcag 1181		sen	rs: 32308132																ted by chance to have a			Description		08 Rfc0028 38 AV90908	AV910971 AV910971 AV945422 AV945422
GenCore version 5.1.6 c() 1993 - 2003 Compugen Ltd.), using sw model	01:20:59 ; Search time 1249.12 Seco (without alignments) 15312.305 Million cell	-2 ggaaaaaaattttactttttctctgcag 11	JG . , Gapext 1.0	egs, 8097743376 residues		0000001	tch 0%	ıjst 150 summaries	13:14 	in: *	VV:#			* · · · · · · · · · · · · · · · · · · ·	.fun:* .om:*	; * 			mus:* other:*	_pro:* _rod:*	esults predicted by chance to have to the score of the result being	of the total score distribution.	SUMMARIES	DB ID Descrip		17 AQ989708 AQ989708 R£C0028 10 AV909088 AV909088 AV909098 13 BT964087 BT964087	10 AV945422 AV945422 AV945422 AV94542
Core version 1993 - 2003	search, using sw	<pre>; Search time 1249.12 Seco (without alignments) 15312.305 Million cell</pre>	aaaaaaattttactttttctctgcag 11	Н		hits satisfying chosen parameters:	length: 0 length: 200000000	Minimum Match Maximum Match	ng fiŗst	EST:* 1: em_estba:* 2: em_estbim:*	3: em_estin:* 4: em_estmu:*	em_estov em_estpl	em_htc:* gb_est1:		13: 95_est4:* 14: qb_est5:*		gb_gss em_gss	em_gss_inv:* em_gss_inv:*		em_gss_mus:* em_gss_other		is the number of results predicted by chance to have	of the total score distribution.	SUMMARIES	ery tch Length DB ID Descrip		.1 755 17 AQ889708 AQ889708 R£C0028 .9 615 10 AQ999088 AV990908 AV909090 0 620 12 DETACAGES DETACAGES DETACAGES DETACAGES	AV910971 AV910971 AV910971 AV910971 AV910971 AV910971 AV945422 AV945422 AV94542
GenCore version (c) 1993 - 2003	ws bujsn	18, 2003, 01:20:59; Search time 1249.12 Seco (without alignments) 15312.305 Million cell	-2 ggaaaaaaattttactttttctctgcag 11	TY_NUC Gapext 1	seqs, 8097743376	satisfying chosen parameters:	Minimum DB seq length: 0 Maximum DB seq length: 2000000000	Post-processing: Minimum Match 0% Maximum Match 100%	Listing first	Ε .		em_estov em_estpl	em_htc:* gb_est1:				gb_gss em_gss	em_gss_inv:* em_gss_inv:*		em_gss_mus:* em_gss_other		the number of results predicted by chance to have than or equal to the score of the result below	s derived by analysis of the total score distribution.		Length DB ID Descrip		48.8 4.1 755 17 AQ989708 AQ989708 R£C0028 46.6 3.9 615 10 AV909088 AV909088 AV909098 46.6 3.0 6.0 12 DETAKRES	.9 669 10 AV910971 AV945422 AV94542 AV94542

	LOCUS AQ889708 (752 DP DNA 11near GSS 14-AUG-2000 DEFINITION Rfc00285 Photorhabdus luminescens strain W14 M13 library Photorhabdus luminescens genomic clone PLG00285, DNA sequence. ACCESSION AQ989708 (15:9648302 KEYWORDS) GSS. KEYWORDS GSS. SOURCE Photorhabdus luminescens	Photorhabdus Bacteria; Pro Photorhabdus.	AUTHORS firench-Constant, R.H., Waterfield, N., Burland, V., Perna, N.T., Daborn, P.J., Bowen, D. and Blattner, F.R. TILE A genomic sample sequence of the entomopathogenic bacterium	Photorhabdus luminescens W14: AL Appl. Environ. Microbiol. 66 NE 20378633	t RH d Bioc	South Bullding, Bath BA2 7AY, UK Tel: (44) 1225 826621 Fax: (44) 1225 826779	dom reads from the M13 libr clones (BLASTX, BLASTN and	2 genome) please see ffrench-Constant et al. 2000, Nucle Pies. mer: M13 Forward	Clas	source 1.755 /organism="Photorhabdus luminescens"	/strain="W14" /db_xreef="laxon:29488" . /rlone="Pif0008f"	/clone_lib="Photorhabdus luminescens strain W14 M13 library"	/dev_stage="primary phase variant" /noth="Genomic DNA from strain W14 was size selected (1-2 kh) and then cloned into M13 lanus"	BASE COUNT 204 a 194 c 136 g 209 t 12 others ORIGIN	Query Match 4.1%; Score 48.8; DB 17; Length 755; Best Local Similarity 54.5%; Pred. No. 0.011; Matches 120; Conservative 0; Mismatches 97; Indels 3; Gaps 1;	264 TCAATATCTTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCGGTCGG	Db 53 TCAATCCGTTGACGAGCCGCTTTTCCCATTTTTGCCTCCTGTCTGAGACAATAAA 112	324 TCGCGCAGTGCACGTCCATGCAGACACACCCCCACGGGTAACAGCGTCCCTGTCACA	113 AAATTAACCGCATCGACAATTGCTGAAACATCTCCTGGCGTAACCAAAATACCTGAATTA	Db 173 CTTTCATAACA-TGCGGTATGCCGCCCGTTCATGGCATAACGGCGCCGCG 440 Db TTTCATTACCGACAACTTCCGGTATGCCTCCGATATAACTGGCAATAACCGCCTGCCA 232	Oy 441 GAGACTGAGCGGTACCATACCAAGGCTTCAT 480	Db 233 CACGCCATCGCTTCCGCAATCGTAATCCTAAACGCTTCGT 272	RESULT 2 AV909088/c LOCUS AV909088 615 bp mRNA linear EST 18-JAN-2002
BF341523 602013526 AZ373715 1M01256A03 BG565053 60258348 BE020591 sm51a12.y B1833612 603088306	AV65093 AV645093 BG562641 602581421 AV655934 AV655934 BG54282 602572464 BG568315 602587244 BG568315 602587244	BG565394 602583532 BG56837 602583559 BB728670 601563955 AV68416 AV684416	BG568953 602587952 AZ463561 1M0272A04 BG564876 602589827	AV653890 AV653890 AV648964 AV648964 BG563207 602582124	BI834454 603084615 BG518475 602645664 BG567109 602589255	BG563303 602582240 BG564030 602584865 BG616785 602615917	BG562824 602581654 BG564329 602590047 BG617332 602615360	AU120839 AU120839 BF126698 601650978 BG568106 602586987		602615 Drosop	AL43/503 T/ end of AL307506 Tetraodon AO110329 CIT-HSP-2	AU056834 AU056834 BF860318 963016C03	AL064634 Drosophil AL059400 Drosophil BG026002 602292170	AA196883 zq60c07.r AI858306 wl36all.x BIG61758 MONOL A C	A1743392 w992677.x BG505886 601859895 BF248131 601859324	BG495140 602540545 BQ948291 AGENCOURT AZ049336 GSSBT:1088		AW658701 95329 MAR BM359682 GA Ea002	BG443931 GA Ea002 BH360392 CH230-107		AGIU0295 002289649 ALG70439 Tetraodon AI.073830 Drosonhil		BJ45804
4 2.9 1081 12 8 2.9 533 12 8 2.9 533 12 8 2.9 539 10 8 2.9 587 10	8 2.9 626 10 AV655093 8 2.9 627 12 BG562641 8 2.9 630 10 AV655934 8 2.9 630 12 BG545828 8 2.9 651 12 BG568315 8 2.9 653 12 BG568315	8 2.9 660 12 8 2.9 665 12 8 2.9 666 12 8 2.9 672 10	8 2.9 719 12 8 2.9 719 17 8 2.9 732 12	8 2.9 747 10 8 2.9 747 10 8 2.9 756 12	8 2.9 759 13 8 2.9 761 12 8 2.9 763 12	8 2.9 785 12 8 2.9 785 12 8 2.9 792 12	8 2.9 797 12 8 2.9 809 12 8 2.9 812 12	8 2.9 818 9 8 2.9 836 12 8 2.9 851 12	8 2.9 869 12 8 2.9 891 10	8 2.9 1002 17	8 2.9 1032 17 8 2.9 1085 17 6 2.8 701 17	5 2.8 713 9 736 12	5 2.8 797 17 5 2.8 939 17 6 2.8 1065 12	4 2.8 323 9 4 2.8 372 9 4 2.8 466 13	4 2.8 490 9 4 2.8 654 12 4 2.8 800 12	4 2.8 814 12 4 2.8 972 14 2 2.8 427 17	2 2.8 453 13 2 2.8 490 17	2 2.8 553 10 2 2.8 636 13	2 2.8 642 12 2 2.8 719 17	2 2.8 777 12 2 2.8 777 12 2 . 2.8 932 17	2 2.8 980 17 2 2.8 980 17 2 2.8 1024 17	3 2.8 293 12 3 2.8 317 10	2.8 388 13
881 33. 881 33. 884 33.	0 886 833 833 833 833 833 833 833 833 833	92 33. 93 33. 94 33.	96 33.	100 33.	102 103 33.	106 33.	109 33.	111 33. 112 33. 113 33.	114 33.	117 33.	 	33.			129 33. 130 33. 131 33.	 	135 33. 136 33.		140 33.	142 33. 143 33.	 	147 148 3	150 3

```
Query Match
Best Local Similarity
Matches 88; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 4
AV910971
                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              629 bp mRNA linear EST 08-APR-2002 BJZ64853 Y. Ogihara unpublished cDNA library, Wh_h Triticum BJZ64853 BJZ64853. GI:20085028 BJZ64853.1 GI:20085028
                                                                                                  Hordeum vulgare subsp. vulgare.

Hordeum vulgare subsp. vulgare

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae;

Triticeae; Hordeum.

1 (bases I to 615)

Sato, K., Saisho, D. and Takeda, K.

Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae; Triticeae; Triticum.

7 Triticeae; Triticum.

1 (bases 1 to 629)

0gihara, Y. and Murai, K.
Expressed genes in Triticum aestivum
Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTTTCCTTCCTGGTCCTCAGGAATAATGTCAGGTATGCCTCCAGGTCGAGCAGCACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            431 GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AV909088 K. Sato unpublished cDNA library, cv. Akashinriki vegetative stage leaves Hordeum vulgare subsp. vulgare cDNA clone baak11122 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                               /cultivar="Akashinriki"
/db_xref="taxon:112509"
/clone="beak11122"
/clone_llb="K. Sato unpublished cDNA library, cv.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 46.6; DB 10; Length 615;
Pred. No. 0.043;
0; Mismatches 69; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Hordeum vulgare subsp. vulgare
                                                                                                                                                                                                                                                       Contact: Tadasu Shin-1
Center For Genetic Resource Information
National Institute of Genetics
1111 Yata, Mishima, Shizuoka 411-8540, Japan
Fax: 81-559-81-6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Tadasu Shin-1
Center For Genetic Resource Information
National Institute of Genetics
1111 Yata, Mishima, Shizuoka 411-8540, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Akashinriki vegetative stage leaves'/tissue_type="leaves"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATGACCACCACTGGCAATCCGGTAGACCGGTAAC 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /dev_stage="vegetative stage"
118 c 193 g 141 t
                                                                                                                                                                                                                                                                                                                                                               tshini@genes.nig.ac.jp.
Location/Qualifiers
                                                                    AV909088.1 GI:18204518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 3.9%;
Best Local Similarity 56.1%;
Matches 88; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Triticum aestivum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bread wheat
                                                                                                                                                                                                                                                                                                                                                               Email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 324
                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
SOURCE
ORGANISM
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                    ORGANISM
                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                   ACCESSION
                                                                VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
BJ264853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
```

```
/urganism="Triticum aestivum"
/cultivar="Chinese Spring"
/dultivar="Chinese Spring"
/dultivar="Chinese Spring"
/dultivar="Chinese Spring"
/clone="whb954"
/clone="whb954"
/clone="lb="Y. Ogihara unpublished cDNA library, Wh_h"
/tissue_type="spike at heading date"
/dev_stage="Feekes' scale 10.5"
/note="Vector: Lambda Uni-ZAP XR, excised phagemid;
/dev_stage="Feekes' scale 10.5"
/note="vector: Lambda Uni-ZAP XR, excised phagemid;
/dev_stage="Feekes" stele="2" xho1; Plants were grown under
hydroponic conditions at UC Davis, salt stressed for 12
hours, and for 7 days, then dissected and frozen (Akhunov
in J Dvorak Lab). Total RNA was prepared from sheath
tissue, equal quantities of RNA were pooled from the two
samples, polyA was purified from the pooled from the two
samples, polyA was purified from the pooled RNA, a cDNA
library was made, and the cDNA clones were in vivo
excised to give pBluescript phagemids in the TU Close lab
at the University of California, Riverside (Akhunov, Chin
/ Choi, Close, Fenton, Rianian, Otto, Simons, Zhang).
Plasmid DNA preparations and DNA sequencing were

reformed in the On Anderson lab, sail other anthone."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryotta; Viridiplantee; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Viridiplantee; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; Pooideae; Triticeae; Hordeum.

1 (bases 1 to 669)

2 Sato,K., Saisho,D. and Takeda,K.

Barley EST sequencing project in NIG and Okayama Univ
Unpublished (2002)

Contact: Tadasu Shin-i
Contact: Tadasu Shin-i
Contact: For Genetic Resource Information
National Institute of Genetics
1111 Yata, Mishima, Shizuoka 411-8540, Japan
Tel: 81-559-81-6856
Fax: 81-559-81-6855
Email: tshini@genes.nig.ac.jp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AV910971 K. Sato unpublished cDNA library, cv. Akashinriki vegetative stage leaves Hordeum vulgare subsp. vulgare cDNA clone baakliii22 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          431 GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Plasmid DNA preparations and DNA sequencing were performed in the OD Anderson lab (all other authors)." 191 c 138 g 151 t 3 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 629;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Hordeum vulgare subsp. vulgare"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           491 CATGACCACCACACTGGCAATCCGGTAGACCGGTAAC 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.9%; Score 46.6; DB 13;
ilarity 56.1%; Pred. No. 0.043;
Conservative 0; Mismatches 69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hordeum vulgare subsp. vulgare.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hordeum vulgare subsp. vulgare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tshini@genes.nig.ac.jp.
Location/Qualifiers
Tel: 81-559-81-6856
Fax: 81-559-81-6855
Email: tshini@genes.nig.ac.jp.
                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AV910971
AV910971.1 GI:18206747
```

```
/clone="whydataling" / clone="whydataling" / clone="whydataling" / clone="lib="x". Ogihara unpublished cDNA library, Wh_yd" / clone=lib="x". Ogihara unpublished cDNA library, Wh_yd" / clone="libca" sale a late flowering" / dev_stage="spikelet at late flowering" / dev_stage="spikelet at late flowering" / dev_stage="spikelet" sale flowering is library. Site_l: EcoRi; Site_l: XhOI; Plants were grown under hydroponic conditions at UC Davis, salt stressed for 12 hours, and for 7 days, then dissected and frozen (Akhunov in Jorozak Lab). Total RNA was prepared from sheath tissue, equal quantities of RNA were pooled from the two samples, polyA was purified from the pooled from the tissue, equal quantities of RNA were pooled from the tissue, equal quantities of RNA clones were in vivo excised to give pBluescript phagemids in the TJ Close lab at the University of California, Riverside (Akhunov, Chin Choi, Close, Fenton, Kianian, Otto, Simons, Zhang). Plasmid DNA preparations and DNA sequencing were performed in the OB Anderson lab (all other authors)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; Lillopsida; Poales; Poaceae; Pooldeae
                                                                                                                                                                                                                                                          BJ312175 Y. Ogihara unpublished cDNA library, Wh_yd Triticum aestiyum cDNA clone whyd24j0l 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    431 GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             547 CGGAACTCCCGATGACATTGCCTCCAACACAAAACCCAGCGTCTCTGATTCAGAAGG 606
431 GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.9%; Score 45.8; DB 13; Length 647; 56.2%; Pred. No. 0.073; Live 0; Mismatches 67; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 j Triticaes, Triticum.

1 (bases 1 to 647)

Expressed genes in Triticum aestivum

Unpublished (2002)

Contact: Tadasu Shin-i

Center For Genetic Resource Information

National Institute of Genetics

1111 Yata, Mishima, Shizuoka 411-8540, Japan

Tel: 81-559-81-6856

Fax: 81-559-81-6856

Fax: 81-559-81-6856

Fax: 10-559-81-6856

                                                                                                                       491 CATGACCACCACTGGCAATCCGGTAGACCGGTAAC 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATGACCACCACACTGGCAATCCGGTAGACCGG 523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Triticum aestivum"
/cultivar="Chinese Spring"
/db_xref="taxon:4565"
                                                                                                                                                                                                                                                                                                                                          BJ312175
BJ312175.1 GI:20119140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                     Triticum aestivum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. .647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                              bread wheat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                     RESULT 6
BJ312175
                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                         rocas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                  g
                                                                                                                                                 g
                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hordeum vulgare subsp. spontaneum.
Hordeum vulgare subsp. spontaneum
Hordeum vulgare subsp. spontaneum
Hordeum vulgare subsp. spontaneum
Subarayota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooldeae;
Triticeae; Hordeum.
Triticeae; Hordeum.
Sato, Existo, D. and Takeda, K.
Barley EST sequencing project in NIG and Okayama Univ
Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AV945422 K. Sato unpublished cDNA library, strain H602 adult, heading stage top three leaves Hordeum vulgare subsp. spontaneum cDNA clone bah26il5 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone_lib="K. Sato unpublished cDNA library, strain H602 adult, heading stage top three leaves"
/tissue_type="top three leaves"
/tessue_type="top three leaves"
/tessue_type="adult, heading stage"
/ 204 c 113 g 175 t 1 others
                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTTCCTTCCTGCTCCTCAGGAATAATGTCAGGTATGCCTCCAGCTCCAGCACCACCACCAC 546
                                                                                                                                                                                                                                                                                                                                                                                                                                       431 GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     460 CTTTCCTTCCTGGTCCTCAGGAATAATGTCAGGTATGCCTCCAGCTCGAGCAGCACCAC 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                  Gaps
                                                                                  cDNA library, cv.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                             ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .693
/organism="Hordeum vulgare subsp. spontaneum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 693;
                                                                                                                                                                                                                                              Length 669;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 46.6; DB 10; Length
Pred. No. 0.044;
0; Mismatches 69; Indels
                                                                                                                                                                                                                                                                                                Indels
     /cultivar-"Akashinriki"
/db_xref="taxon:112509"
/clone="baak11122"
/clone_lib="K. Sato unpublished cDNA l
Akashinriki vegetative stage leaves"
/tissue_type="leaves"
/dev_stage="vegetative stage"
: a 202 c 135 g 171 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Tadasu Shin-i
Center For Genetic Resource Information
National Institute of Genetics
1111 Yata, Mishima, Shizuoka 411-8540, Japan
Febr. 81-559-81-6856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  491 CATGACCACCACACTGGCAATCCGGTAGACCGGTAAC 527
                                                                                                                                                                                                                                                                                                :69
                                                                                                                                                                                                                                                   DB 10;
                                                                                                                                                                                                                                                   Score 46.6; DB 1
Pred. No. 0.043;
0; Mismatches (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:77009"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tshini@genes.nig.ac.jp.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="bah26115"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AV945422
AV945422.1 GI:18241219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /strain="H602"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3.9%;
L Similarity 56.1%;
88; Conservative
                                                                                                                                                                                                                                                   3.98;
56.18;
                                                                                                                                                                                                                                                                         Local Similarity 56.1
nes 88; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email:
                                                                                                                                                                                 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S:
Matches 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      487
                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
COMMENT
                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 5
AV945422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                    å
                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
```

```
BH468052 866 bp DNA linear GSS 13-DEC-2001
BOHOJ24TF BOHO Brassica oleracea genomic clone BOHOJ24, DNA
sequence.
                                         Oryza sativa (japonica cultivar-group).

Oryza sativa (japonica cultivar-group).

Dukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;

Bhrhartoideae; Oryzae, Oryza.

1 (bases 1 to 714)

Sasaki,T. and Yamamoto,R.

Rice cDNA from callus (2000)

Contact: Takuji Sasaki

National Institute of Agrobiological Resources

Rice Genome Research Program, Kannondai 2-1-2, Tsukuba, Ibaraki

305-8602, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Wagnollophyta; eudicotyledons; core eudicots; Spermatophyta; eucosidae; eurosida II; Brassicales; Brassicaceae; Brassica.

1 (bases 1 to 866)

Town,C.D., Van Aken,S., Utterback,T. and Fraser,C.M. Whole genome sheton sequencing of Brassica oleracea Unpublished (2001)
Other_GSSs: BOHOJ24TR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           444 ACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTTCCGAAGGCATGACCACCACA 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    191 GCCATGGACTCCAGCACTACTTGACCAGAGTGTCTCAGATTCTGAAGGATTGCAAACAAG 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone="C12279"
/clone_lib="Rice callus"
/clone_lib="Rice callus"
/note="Wetcr: pBluescript II SK+; Site_1: SalI; Site_2:
NotI; cDNA prepared from rice callus mRNAs by using
oligo(dT) as a primer and ligating to the SalI-NotI site
of pBluescript II SK+ phagemid. "
147 c 1186 g 178 t
                                                                                                                                                                                                                                                                                                                                                                                  Email: tsasaki@abr.affrc.go.jp, URL:http://rgp.dna.affrc.go.jp/
PROJECT ='RGP'.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       384 TTCTTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Oryza sativa (japonica cultivar-group)"
/cultivar="Nipponbare"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 42.2; DB 9; Length 714;
Pred. No. 0.77;
0; Mismatches 63; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9712 Medical Center Drive, Rockville, MD 20850, USA.
Tel: 301-838-3523
Fax: 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:39947"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                504 CIGGCAATCCGGTAGACCGGTAA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          131 TCGCCACTGGCATATGCTTGTGA 109
                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BH468052.1 GI:17672223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.68;
                                                                                                                                                                                                                                                                                                                                      Tel: 81-298-38-7441
Fax: 81-298-38-7468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Chris Town
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 55.99
Watches 80; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Brassica oleracea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Brassica oleracea
                                                                                                                                                                                                                                                                                                                                                                                                         = ' RGP '
    AU100720.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                     ORGANISM
                                                                                                                                                                             AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
VERSION
KEYWORDS
SOURCE
                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 9
BH468052
                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Lillopsida; Poales; Poaceae; Pooideae; Triticeae; Hordeum.

1 (Dases 1 to 495)

1 (Dases 1 to 495)

1 (Bases 1 to 495)

2 Hedley, P. Liu, H., Caldwell, D., McCallum, N., Mudie, S., Cardle, L., Ramsay, L., Machray, G., Marshall, D.F.M. and Waugh, R.

1 Dopublished (2001)

2 Contact: Waugh R. Marshall DF Genome Dynamics/Computational Biology

3 Scottish Crop Research Institute

Invergowrie, Dundee, DD2 5DA, Scotland, UK

Tel: 00 44 1382 562426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Vector: psporn; Site_1: Sal I; Site_2: Not I;
Non-normalised library, directionally cloned into psporn:
Derived from roots of 3 week old waterlogged barley plants. Developed as part of the barley transcriptome resources of BBSRC/SERRAD funded cereal IGF (Investigating Gene Function) project."

17 t
                                                                                   EBro03_SQ005_K13_R root, 3 week, waterlogged, cv Optic, EBro03 Hordeum vulgare cDNA clone EBro03_SQ005_K13 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EST 03-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           404 GATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTAC 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  464 CATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGG 523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          201 CACGCCGAGCACCCGCATGCCCGCGGGATGGACATGATCCCCGGCGCCCCACCACGCTCGT 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      524 TAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCAGGTGTTCTGT 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taptor: 4513"
/db_xref="taptor: 4513"
/clone="EBro03_SQ005_K13"
/clone_lbp="root, 3 week, waterlogged, cv Optic, EBro03"
/tissue_lype="root"
/dev_stage=" a week"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AU100720
714 bp mRNA linear EST 03-APR-20
MU100720 Rice callus Oryza sativa (japonica cultivar-group) cDNA
clone C12279, mRNA sequence.
AU100720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.8%; Score 45; DB 14; Length 495; 49.8%; Pred. No. 0.12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches 115; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Hordeum vulgare"/cultivar="Optic"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: est@scrl.sar1.ac.uk.
Location/Qualifiers
                                                                                                                                                                             BQ763870.1 GI:21972342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 114; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. .495
                                                                                                                                                                                                                    Hordeum vulgare.
Hordeum vulgare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                         RESULT 7
BQ763870/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 8
AU100720/c
                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                        ACCESSION
                                                                                                                                                                             VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
```

ö

Gaps

443

```
Best Local Similarity
Matches 42; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cea mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 11
AW042265/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                              셤
                                                                                                                                                                          g
                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                      ö
                                                             ä
                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GSS 26-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (13-JUL-1999) Genoscope - Centre National de Sequencage : BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.fr - Web : www.genoscope.cns.fr)

- Web : www.genoscope.cns.fr)

- Web : www.genoscope.cns.fr)

- Web : www.genoscope.cns.fr)

- Web : www.genoscope.cns.fr)

- Web : www.genoscope.cns.fr)

- Web : www.genoscope.cns.fr)

- Web : www.genoscope.cns.fr)

- This BAC was carried out as part of a collaboration with the European Drosophila Genome Project (EDGP) - http://www.edgp.ebi.ac.uk -. This Drosophila melanogaster BAC library (Dros BAC) was made by Alain Builand at CEBH (Centre Library (Dros BAC) was made by Alain With funding provided by a MRC project grant. The DNA was prepared from embryos by Alain Bucheton and Genevieve Payan. It has been constructed in the vector
                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                 391 GAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACG 450
                                                                                                                                                                                                                                                                                                                                                                                                         176 ccrcaagaaccacaaggccaagggrcrccgacrcrgarggcarcacaaacacarcrccgc 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                             451 CTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAA 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CNS0106X 1101 bp DNA linear GSS 26-JUL-19
Drosophila melanogaster genome survey sequence T7 end of BAC
BACN03K20 of DrosBAC library from Drosophila melanogaster (fruit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.

1 (bases 1 to 1101)
Genoscope.
                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                               /note="Yector: pHOS1; Site_1: BstXI; 2-3 kb sheared genomic DNA inserted into pHOS1 using BstXI linkers" 200 c 144 g 239 t
                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                Score 41.6; DB 17; Length 866;
Pred. No. 1.2;
     Email: cdtown@tigr.org
DNA is from a doubled haploid provided by Tom Osborn.
Seg primer: TF
Class: sheared ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   501 others
                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Drosophila melanogaster"
/db_xref="taxon:7227"
/clone="BACN03K20"
                                                                                                                                                                                                                                                                                                                                                59;
                                                                                                                      /organism="Brassica oleracea"
/strain="T01000DH3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     175 t
                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="DrosBAC"
/plasmid="pBeloBAC11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fly), genomic survey sequence. AL098595
                                                                                                                                                          /db_xref="taxon:3712"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60 g
                                                                                 Location/Qualifiers
                                                                                                                                                                            /clone-"BOHOJ24"
/clone_llb="BOHO"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="end : T7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Drosophila melanogaster
Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AL098595.1 GI:5610206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        511 TCCGGTAGACCGGTAA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           236 TIGCGTAAGCITGIGA 251
                                                                                                                                                                                                                                                                                                              3.5%;
                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 56.6'
Matches 77; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                          1.866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pBeloBAC11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       đ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
CNS0106X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
```

Length 1101;

Score 41; DB 17;

3.5%;

Query Match

```
614026001.yl 614 - root cDNA library from Walbot Lab Zea mays cDNA, mRNA sequence.
AW042265
AW042265.1 GI:5901165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               384 ITCTTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAG 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1001 CAGTCCTGCTATATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTC 1060
                                                                                                                                                                                                                                                                   1061 CCCGATAATCCGTCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAAT 1120
             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Organ: root; Vector: pBlueScriptII SK+; Site_1:
ECORI; Site_2: XhoI; 3-4 days old root tissue from Walbot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC
clade; Panicoideae; Andropogoneae; Zea.
                                                 940
                                                                                                                                                                                                                     941 ACGGGTGATGTAGGTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCT
                                                                                                                                              Gaps
                                                   881 GGGTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:4577"
/db_xref="taxon:4577"
/clone_lib="614" - root cDNA library from Walbot Lab"
/tlssue_type="root"
/dev_stage="3-4 days old"
/lab_host="XLOLR"
                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Walbot, v. Maize ESTs from various cDNA libraries sequenced at Stanford Maize ESTs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 533;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Stanford University
855 California Ave, Palo Alto, CA 94304, USA
Fax: 650 723 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64;
               91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        114 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 40.6; Di
Pred. No. 2.1;
0; Mismatches
ilarity 16.7%; Pred. No. 1.8;
Conservative 118; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: walbot@stanford.edu
Plate: 614026 row: D column: 01.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Zea mays"
/cultivar="W23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        163 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 3.4%;
Best Local Similarity 55.2%;
Matches 79; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lab (LM)"
108 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 533)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                               1121 AAAAGTGACAT 1131
                                                                                                                                                                                                                                                                                                                                                                                982 DADAKAKAK 992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Walbot V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
```

```
Zea mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zea mays
                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 14
BH778732/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                   AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
   KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CII...., CSP6 Ceratopteris Spore Library Ceratopteris richardii CDNA clone Cri.9_106_SP6 Ceratopteris Spore Library Ceratopteris richardii BQ087067 CFC CONA CIONE CI
                                                                                                                                                                                  HTC 26-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Poales, Poaceae, PACC
clade, Panicoideae, Andropogoneae, 2ea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 384 TICTTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAG 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rccrrccGGTATTATATCAGGTATCCCTCCAGCACGACGACGACGACTGGGACTCCAGAA 497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                444 ACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACA 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     498 GCCATGGACTCCAGCACTACTTGCCCGAGGGTCTCGGATTCTGAAGGCATTGCAAATACA 557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Library"
/note="this sequence is part of a project of EST
assemblies resulting from the application of public
contigs to seed DuPont contigs; this resource was
assembled by DuPont as part of a collaboration for the
overgo addressing of BACs in conjunction with the Maize
                                                                                                                                                                                                                                                                                                                                                  1 (bases 1 to 736)
Hainey,C.F., Dolan,M., Miao,G.H., Vogel,J.M., Whitsitt,M.S.,
Arthur,L.W., Hanafey,M., Morgante,M. and Tingey,S.V.
Maize Mapping Project/DuPont Consensus Sequences for Design of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
Submitted (25-APR-2002) Maize Mapping Project, University of
Missouri, Columbia, MO 65211, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="CL8980_1"
/clone_lib="Maize Mapping Project/DuPont Cornsensus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 40.6; DB 11; Length 736;
Pred. No. 2.2;
0; Mismatches 64; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31 others
                                                                                                                                                                                  linear
                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 182 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Zea mays"
/db_xref="MaizeDB:633031"
/db_xref="taxon:4577"
                                                                                                                                                                               AY112421 736 bp
Zea mays CL8980_1 mRNA sequence.
AY112421
                                                                                       181 TCCGCACTGCCGTACGCTTGTGA 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  504 CTGGCAATCCGGTAGACCGGTAA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  558 TCCGCACTGGCGTACGCTTGTGA 580
                                                                 504 CTGGCAATCCGGTAGACCGGTAA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                154 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mapping Project"
198 c 154
                                                                                                                                                                                                                               AY112421.1 GI:21217011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 3.4%;
Best Local Similarity 55.2%;
Matches 79; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 736)
                                                                                                                                                                                                                                                                                                                                                                                                                   Overgo Probes
Unpublished (2002)
                                                                                                                                                                                                                                                                    Zea mays.
                                                                                                                                                                                                                                                                                  Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Coe, E.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 171
                                                                                                                                                                                            DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 13
BQ087067/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                              RESULT 12
AY112421
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                g
                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
   ð
                                                                  ò
```

```
/cultural" Sergion"
/cultural" Engage
/cultural #19495
/cultural #19495
/clone="tri_9_106"
/clone="tri_9_106"
/clone=lib="ceratopteris Spore Library"
/tissue_type="Spore"
/tissue_type="Spore"
/dev_stage="20 hours after germination initiation"
/dev_stage="20 hours after germination initiation"
/note="vector: pCMVSPORT6; EST sequence from cDNA library
/constructed from mRNA isolated from C
richardii spores that had developed for 20 hours after
their germination had been initiated by white light."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tembol3f051a07f0 fzmb filtered library Zea mays genomic clone fambol3f051a07 5', DNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae, Andropogoneae; Zea.
1 (bases 1 to 461)
Budiman,M.A., Freese,R.G., Bedell,J.A., Nunberg,A.N. and Lakey,N.D. Generfbresher methylation filtered genomic sequences from maize Contact: Bedell JA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 493
                                                                                               cnatterjee,A., San Miguel,P., Stout,S.C., Banks,J. and Roux,S.J.
Expressed sequence tags of cDNA clones from a C. richardil library
Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ceratopteris richardii
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Filicophyta; Filicopsida; Filicales; Pteridaceae; Ceratopteris.
1 (bases 1 to 645)
Chatterjee, A., San Miguel, P., Stout, S.C., Banks, J. and Roux, S.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    434 CACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 645;
                                                                                                                                                                                           Contact: Roux 5J
Section of Molecular Cell and Developmental Biology
University of Texas
Biology Building, Room 16, Austin, TX 78712, USA
Tel: 512 471 4238
Fax: 512 232 3402
Email: sroux@uts.cc.utexas.edu
Plate: Cri_9_row: I column: 06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Orion Genomics, LLC
4041 Forest Park Ave, St. Louis, MO 63108, USA
Tel: 314 615 6979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. .645 // Corganism="Ceratopteris richardil"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 3.3%; Score 39.4; DB 14; Best Local Similarity 53.6%; Pred. No. 4.7; Matches 82; Conservative 0; Mismatches 71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Viridiplantae; Streptophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       415 CACAAAACATCCCCACTTGCATAGGCTTGTGA 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               494 GACCACCACACTGGCAATCCGGTAGACCGGTAA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BH778732.1 GI:19781391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  128 c
```

```
Query Match 3.3%;
Best Local Similarity 52.1%;
Matches 86; Conservative
Class: BAC ends
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                               ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          naman.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 16
BG330039/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AG-ND-130K10.TF ND-TAM Anopheles gambiae genomic clone AG-ND-130K10
, DNA sequence.
BH388561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This clone is from an A. gambiae BAC library (ND-TAM) provided by F.H. Collins and sequenced by The Institute for Genomic Research (TIGR). The BAC library was generated from A. gambiae PEST strain DNA. All DNA was extracted from newly hatched first instar larvae to minimize the inclusion of DNA from microorganisms that inhabit the gut. The DNA is derived from mixed sexes of larvae. The BAC library was constructed at Texas AAM University BAC Center University, College Station, Texas 77843-2123, USA using a HindIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Collins, F., Gardner, M. and Loftus, B.J. sequences from Anopheles gambiae
                                                                                                                                                                                                                                                             /cordinism="Zea mays"
/cultivar="Mol7"
/db_xref="taxon:4577"
/clone_lib="fzmb013f051a07"
/clone_lib="fzmb013f051a07"
/clone_lib="fzmb filtered library"
/clone_lib="fzmb"
/clone_l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            431 GGGCACGCGGAGACTGACCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Anopheles gambiae
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Nematocera; Culicoldea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 39.2; DB 17; Length 461; Pred. No. 5.1; 0; Mismatches 73; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Brendan J Loftus
Department of Eukaryotic Genomics
The Institute for Genomic Research
9712 Medical Center Dr., Rockville, MD 20850, USA
Tel: 301 838 0208
Fax: 301 838 3543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATGACCACCACACTGGCAATCCGGTAGACCGGTAA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             279 CATTGCAAATACATCTCCACTGGCGTACGCTTGTGA 244
                                        Email: jbedell@criongenomics.com
Plate: fzmb013f051 row: a column: 07
Seq primer: M13 forward
Class: shotgun
High quality sequence stop: 461.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Shetty, J., Malek, J., Koo, H., Direct Submission of BAC-end Unpublished (2001) Other_GSSs: AG-ND-130K10.TR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      African malaria mosquito.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: bjloftus@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BH388561.1 GI:17334702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.3%;
53.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               partial digest.
Seq primer: M13 For
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 769)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 3.3 Best Local Similarity 53.2 Matches 83; Conservative
             314 615 5975
                                                                                                                                                                                                                                     1, .461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
ORGANISM
                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 15
BH388561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
```

à g å 셤 ð 8

```
926 bp mRNA linear EST 27-FEB-2001 mRNA sequence. BS330039.1 GI:13136477 ESST.
                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                       404
                                                                                                                                                                                                                                                                                                                                                                                                                                    405 ATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGTTCAGCCAGTACC 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="retinoblastoma",
/lab_host="bH10B (phage-resistant)"
/lab_host="bH10B (phage-resistant)"
/note="Gorgan: eye; Vector: pOTB7; Site_1: XhoI; Site_2:
ECORI; cDNA made by oligo-dr priming. Directionally
cloned into ECORI/XhoI sites using the following 5'
adaptor: GGCAGCAG(G). Library constructed by Ling Hong
in the laboratory of Gerald M. Rubin (University of
California, Berkeley) using ZAP-CDNA synthesis kit
(Stratagene) and Superscript IRT (Life Technologies).
Note: this is a NIH_MGC_Library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo. I bases 1 to 956)
NIH-WGC http://mgc.ncl.nlh.gov/.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: image.llnl.gov Plate: LLCM1264 row: h column: 03
High quality sequence stop: 667.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                 345 GCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGG
                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDNA Library Preparation: Ling Hong/Rubin Laboratory CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                Length 769;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         465 ATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCA 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       257 AGACCGAAGCTTTCCTGTTGTGACGGAAGCATAAATACATCCGCA 301
                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                 /db_xref="taxon:7165"
/clone="AG-ND-130K10"
/clone_lib="ND-TAM"
/note="Vector: pECBAC1; Site_1: HindIII"
157 c 143 g 257 t
                                                                                                                                                                                                                                                                                   DB 17;
                                                                                                                                                                                                                                                                                                                                   79;

    769
    /organism="Anopheles gambiae"
/strain="PEST"

                                                                                                                                                                                                                                                                                   Score 38.6; DE
Pred. No. 8;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="IMAGE:4558514"
/clone_lib="NIH_MGC_16"
Location/Qualifiers
```

σ

ö

Gaps

ö

Indels

d. No. 11; Mismatches

Pred.

52.5%;

Conservative

383

324 TCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACA 373 TCAACCATTGCCTCGGCCAGCTTTATTCCATCGGTATCAGAAATCTTCGTCCTGTCACT 384 ITCTTCTGAATGACATCAGGGATCCCGCCGTCTCACTGGCGATAACGGGCACGCCGGAG

443

313 CCTTCAATAACTGTCTCTGAGGGCCCACCACTGTCAATAACAATAACTGGACGACGTTGC 254

```
Best Local Similarity
Matches 83; Conserv
                                                                                                                            g
                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Anotes Vector: pAMP1 (Gibco); The library was constructed by Brandi Chiapelli and Dr. James McCarter at Washington University, St. Louis. The CDNA was made by using Dynabead oligo-dr priming (Dynal). PCR based library using a modified protocol from the SWART PCR CDNA Synthesis Kit from Clonnech. Directionally cloned into the UDG sites of PAMP1. Nematodes were provided by Dr. David Bird of North Carolina State University.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bmail: est@watson.wustl.edu
The library was constructed by Brandi Chiapelli and Dr. James
McCarter (bchiapel@watson.wustl.edu & jmccarte@watson.wustl.edu) at
Washington University, St. Louis. DNA Sequencing by: Washington
University Genome Sequencing Center St. Louis.
High quality sequence stop: 395.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BI744669
rX88D109.71 Meloidogyne javanica egg pAMP1 v6 Chiapelli McCarter Meloidogyne javanica egg pAMP1 v6 Chiapelli McCarter Meloidogyne javanica cDM5 5' similar to TR:022698 022698 SIMILAR TO GLYCOSYLTRANSFERASE ALG2. [1]; mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryotzi, Metazoa: Nematoda; Chromadorea; Tylenchida; Tylenchina; Tylenchoidea; Heteroderidae; Meloidogyninae; Meloidogyne.

1 (bases 1 to 509)

McCarter, J., Clifton, S., Chiapelli, B., Pape, D., Martin, J., Wylie, T., Dante, M., Marra, M., Hillier, L., Kucaba, T., Theising, B., Bowers, Y. Gibbons, M., Ritter, E., Bennett, J., Franklin, C., Tsagareishvili, R., Renko, I., Kennedy, S., Maguire, L., Beck, C., Underwood, R., Steptoe, M., Allen, M., Person, B., Swaller, T., Harvey, M., Schurk, R., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R. and
                                                                                   ö
                                                                                                                               702 TCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCTGATGCAGCCCAG 761
                                                                                                                                                                                    817 TTGGGAAGCCGCCCCCCCCCTCCAGGTCACCGGGCGCACTGAGTCCCGTGTTCACCAAT 758
                                                                                                                                                                                                                                                                    /organism-"Meloidogyne javanica"
/db_xref-"taxon:6303"
/clone_lib-"Meloidogyne javanica egg pAMP1 v6 Chiapelli
                                                                                                                                                                                                                                         762 GCGTGGATATGCAGGGGTAACGGTCGCATGGCTTCATTATGCAATGCGGGCCAGTCGAAA
                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1999)
Context: McCarter JP
Context: McCarter JP
The Washington Univ. Nematode EST project, 1999
Washington University School of Medicine
444 Forest Park Parkway, Box 8501, St. Louis, MO 63108,
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                   ö
                           Length 926;
                                                                                                                                                                                                                                                                                                                                               CCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGATGC
                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The Washington Univ. Nematode EST Project, 1999
                                                                             83;
                              DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /dev_stage="enriched for eggs"
/lab_host="DH10B"
                        Score 38.2; DE Pred. No. 11; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              112 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BI744669.1 GI:15766471
                        Query Match 3.2%;
Best Local Similarity 51.5%;
Matches 88; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            javanica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ပ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              root-knot nematode.
Meloidogyne javanic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 17
BI744669/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                               ä
                                                                                                                                                                                                                                         ò
```

Score 38; DB 13; Length 509;

3.2%;

Query Match

```
Triticum aestivum

Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Wagnollophyta; Liliopsida; Poales; Poaceae; Pooideae
; Triticeae; Triticum.

1 (bases 1 to 632)
Anderson, O.D., Chao, S., Choi, D.W., Close, T.J., Fenton, R.D., Han.
P.S., Hsia, C.C., Kang, T., Lazo, G.R., Miller, R., Rausch, C.J.,
The structure and function of the expressed portion of the wheat
Unpublished (2000)
                                                                                                                                                                   BG605346 632 bp mRNA linear EST 16-APR-2001 WHE2331_F11_L202S Wheat pre-anthesis spike cDNA library Triticum aestivum cDNA clone WHE2331_F11_L20, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pacific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Site_1: EcoRI: Site_2: XhoI; Plants were grown in the Site_1: EcoRI: Site_2: XhoI; Plants were grown in the greenhouse. Whole spike with awns trimmed, white, green and yellow anther were collected and total RNA, and poly(A) RNA were prepared, a cDNA library was made, and the cDNA clones were in vivo excised to give pBluescript the cDNA clones were in vivo excised to give pBluescript the University of California, Riverside. Plasmid DNA preparations and DNA sequencing were performed in the OD Anderson lab (all other authors).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence and low 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Oll Anderson
US Department of Agriculture, Agriculture Research Service,
West Area, Western Regional Research Center
800 Buchanan Street, Albany, CA 94710, USA
Fax: 5105595773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .632
/organism="Triticum aestivum"
/organism="Triticum aestivum"
/dultivar="Chinese Spring"
/db_xref="taxon:4565"
/clone="WHE2331_F11_L20"
/clone=lib="Wheat pre-anthesis spike cDNA library"
/tissue_type="Spike before anthesis"
/dev_stage="Adult plant"
/lab_host="E. coli SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 38; DB 12; Length 632;
Pred. No. 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
ACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATT 481
                       Email: oandersn@pw.usda.gov
Sequence have been trimmed to remove vector
quality sequence with phred score less than
Seq primer: Stratagene SK primer.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                        BG605346.1 GI:13635349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       165 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                            bread wheat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 74; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                              BG605346/c
                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                       RESULT 18
                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                        VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                         SOURCE
```

```
491 CATGACCACCACTGGCAATCCGGTAGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GSS; genome survey sequence. Tetraodon nigroviridis. Tetraodon nigroviridis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AL192027
AL192027.1 GI:7830131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 3.2%;
Best Local Similarity 52.6%;
Matches 82; Conservative
                                                                                                                                                                                                                                                                   C20457.2 GI:11065616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 125 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            stage"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROJECT -'RGP'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 142
                                                                                                                                                                                                                                                       C20457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CNS02D5U/c
                                                                                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21
                                                                                                                                     RESULT 20
                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                          C20457/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1...4')

(cultivar="Chinese Spring"

(cultivar="Chinese Spring"

(db_ref="twon:4565"

(clone="whs127102"

(clone="whs127102"

(clone="two:320"

(clone="two:320"

(dev_stage="reekes' scale 11.3"

(de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae; Triticae; Triticae; Triticae.

1 (Dases 1 to 479)

2 Ogihara,Y. and Murai,K.

Expressed genes in Triticum aestivum

Unpublished (2002)

Contact: Tadasu Shin-i

Contact: Tadasu Shin-i

Contact: Tadasu Shin-i

Contact: Mishima, Shizuoka 411-8540, Japan

National Institute of Genetics

1111 Yata, Mishima, Shizuoka 411-8540, Japan

Tel: 81-559-81-6856

Fax: 81-559-81-6855

Email: tshini@genes.nig.ac.jp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ô
                                                                                                                                                                                                                                                                                                                                           479 bp mRNA linear EST 09-APR-2002
BJ292385 Y. Ogihara unpublished cDNA library, Wh_SL Triticum
aestivum cDNA clone whs127102 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85
                        444 ACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACA 503
TICTICIGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAG 443
                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 13; Length 479;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 37.8; DB
Pred. No. 13;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                      BJ292385
BJ292385,1 GI:20108645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3.28;
52.98;
                                                                                                                                                                                        504 CTGGCAATCCGGTA 517
                                                                                                                                                                                                                         TCCCCACTGGCGTA 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Triticum aestivum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bread wheat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                      20
       384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                       LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                               BJ292385/c
                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                         RESULT 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                  g
                                                                                                å
                                                                                                                                          셤
                                                                                                                                                                                            ò
                                                                                                                                                                                                                                      g
         ð
```

```
CNSO2D5U 13-MAY-2000 Tetraodon nigroviridis genome survey sequence PUC-Ori end of clone 256P09 of library G from Tetraodon nigroviridis, genomic survey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                 C20457 Rice panicle at ripening stage Oryza sativa (japonica cultivar-group) cDNA clone E12053, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          431 GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="Rice panicle at ripening stage"
/dev_stage="ripening stage"
/note="Organ: panicle; Rice cDNA from panicle at ripening
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 169 cGGGACTCCAGATGACATGGACTCCAGGACTACTTGACCAAGTGTTTCGGACTCCGAGGG 110
                                                                                                                                                                                                                                                                                                                    Oryza sativa (japonica cultivar-group).
Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.
1 (bases 1 to 545)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rice CONA from panicle at ripening stage Unpublished (1996)
On Oct 24, 1996 this sequence version replaced gi:1632728.
Contact: Takuji Sasaki
Contact: Takuji Sasaki
National Institute of Agrobiological Resources
Rice Genome Research Program, Kannondai 2-1-2, Tsukuba, Ibaraki
305-8602, Japan Research Program, Kannondai 2-1-2, Tsukuba, Ibaraki
Tel: 81-298-38-7481
Fax: 81-298-38-7468
Email: tsasaki@abr.affrc.go.jp, URL:http://rgp.dna.affrc.go.jp/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Oryza sativa (japonica cultivar-group)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 37.6; DB 14; Length 545; Pred. No. 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     491 CATGACCACCACACTGGCAATCCGGTAGACCGGTAA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             109 CATCACGAAAACATCACCGCTGGCATATGCCTGTGA 74
84 carrecaaaracereceaereecaracecere 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           116 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /cultivar="Nipponbare"
/db_xref="taxon:39947"
/clone="E12053"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
1. .545
```

```
Zea mays
                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
TITLE
JOURNAL
COMMENT
                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 23
BG840188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                        This sequence is a single read and was generated as part of a large scale clone-end sequencing project of the Tetraodon nigroviridis genome. For more information, please take a look at http://www.genoscope.cns.fr/Tetraodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AV784670 AV784670 RAFL6 Arabidopsis thaliana cDNA clone RAFL06-07-E03 3',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAATAGTGAAGCGGTGACAGCATATCAGACGCCTCAGTCCTGCTATATTACTGTCATGGC 1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1027 CACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCGTCGAAGTCTGAGGA 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1087 IGGAAGGAAGGIGAAGGCIGTICCIGAAAGGAATAAAAGIGACAICAIGCCCICITITIC 1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       273 AAATATGGCTGGCAATCACCGTGGCTACAAAGTAATGATACATAAACCATACAGAGAA 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosida II; Brassicales; Brassicaceae; Arabidopsis.
1 (bases 1 to 649)
Seki,M., Narusaka,M., Ishida,J., Kamiya,A., Satou,M., Nakajima,M.,
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei; Acanthopterygii; Teleostei; Euteleostei; Neoteleostei; Acanthopterygii; Percomorpha; Tetraodontiformes; Tetraodontiformes; Tetraodontiformes; 1 (bases i to 756)
Roest-Crollius, H., Jaillon, O., Dasilva, C., Bouneau, L., Fisher, C., Saurin, W. and Weissenbach, J. Brottier, P., Quetier, F., Human gene number estimate provided by genome wide analysis using Tetraodon nigroviridis DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 333 CATTATIGAAGIGGCIGIIGCAGCICTIGIAGIICAAICAAICITIATIACCCIGGIGGG 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            213 GATTCAAACAGACCACCATGCACCTGGCAGGAAAGAAGGTAATATTTCCGCCTGTTTTTC 154
                                                                                                                                                                                                        2 (bases 1 to 756)
Roest-Crollius, H., Jaillon, O., Dasilva, C., Fizames, C., Fisher, C.,
Bouneau, L., Billault, A., Quetier, F., Saurin, W., Bernot, A. and
Weissenbach, J.
                                                                                                                                                                                                                                                                                                     Charaterization and repeat analysis of the compact genome of the freshwater pufferfish Tetraodon nigroviridis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Genoscope sequence ID : COAG256CH05SP1-end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 756;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 37.4; DB 17; Length Pred. No. 17; 0; Mismatches 106; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Tetraodon nigroviridis"
/db_xref="taxon:99883"
/clone="256P09"
/clone_lib="G"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     174 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1147 IGGCTICCGGAGCAATTITACTITIT 1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        153 CACCTACAGTCAGACATCTATTTGTT 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   204 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mRNA sequence.
AV784670
AV784670.1 GI:19803460
                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
Submitted (12-APR-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.2%;
                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 756)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     156 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best_Local Similarity 48.8
Matches 101; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  thale cress.
                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ø
                                                                                                                                                                                                                                                                                                                                                                                Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                  REFERENCE
                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 22
                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AV784670
                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
Large scale analysis of Arabidopsis full-length CDNA (2002b)
Unpublished (2002)
Contact: Motoaki Seki
Plant Functional Genomics Research Group
RIKEN Genomic Sciences Center
3-1-1 Koyadai, Tsukuba, Ibaraki 305-0074, Japan
Tel: 81-298-36-4359
Fax: 81-298-36-439
Fax: 81-298-36-439
Fax: 81-298-36-439
Fax: 81-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BG840188 501 bp mRNA linear EST 29-MAY-2001
MEST8-G12.T3 ISUM3-TL 2ea mays cDNA clone MEST8-G12 3', mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  432
Oono, Y., Sakurai, T., Carninci, P., Kawai, J., Itoh, M., Ishii, Y., Arakawa, T., Shibata, K., Shinagawa, A., Muramatsu, M., Hayashizaki, Y. and Shinozaki, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 433 GCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCA 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Liliopaida; Poales; Poaceae; PACC clade; Pantcoldeae; Andropogoneae; Zea.

1 (bases 1 to 501)

Gluff., Culf.F., Guo,L., Ashlock,D.A, Wen,T.J. and Schnable,P.S. Expressed Sequence Tags from B73 Maize Seedlings and Silks Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Arabidopsis thaliana"
/db_xref="taxon:3702"
/db_xref="RAFL06-07-E03"
/clone_ltb="RAFL6"
/dev_stage="plants at various developmental stages from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5, 10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               453 ITCCCTCCTGATCTTCAGGGATTATATCAGGGATTCCACCGGCACGGCCGCGACGACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   On May 25, 2001 this sequence version replaced gi:14206510.
Contact: Patrick S. Schnable
Schnable Laboratory
Iowa State University
6405 Agronomy, Iowa State University, Ames, IA 50011-1010, USA
Tel: 515-294-0975
Fax: 515-294-2299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ,
5¢
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           germination to mature seeds"
//lab_host="DH10B"
//note="Site_1: Sst1; Site_2: XhoI; subjected the dehydration (1, 2, 5, 10, 24 hr) and cold (1, hr) treatments"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 649;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                493 TGACCACCACACTGGCAATCCGGTAGACCGGTAA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 37.2; DE Pred. No. 20; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 102 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:14243001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 3.1%
Best Local Similarity 52.6
Matches 81, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BG840188.2
BG840188.2
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Zea mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sednence
```

```
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA sequence.
BI968888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                491 CAT 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Glycine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                               151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
ORGANISM
                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 25
BI968888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                 1...501

(organism="zea mays"

(ullivar="813"

/db_xxef="taxon:457"

/db_xxef="taxon:457"

/clone="mersye dig."

/lab_host="DH10B"

/note="wector: pT73PAC; Site_1: EcoRI; Site_2: NotI;

/note="wector: pT73PAC; Site_1: EcoRI; Alpha disconding discondin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST 12-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequences have been trimmed to exclude PolyA, vector and regions below Phred quality 16. The threshold for highest quality sequence is 20.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sorghum propinguum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; Lillopsida; Poales; Poaceae; PACC
clade; Panicoddeae; Andropogoneae; Sorghum.
1 (bases 1 to 540)
Cordonnier-Pratt, M. -M., Gingle, A., Sudman, M., Marsala, C. and Pratt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     444 ACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACA 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  384 ITCITCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAG 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 442 GCCATGGACTCCAGCACTACTTGCCCGAGGGTCTCGGATTCTGAAGGCATTGCAAATACA 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Laboratory for Genomics and Bioinformatics
The University of Georgia, Department of Plant Biology
Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271, USA
Tal: 706 542 1860
Fax: 706 583 0210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BF586903 110-ear EST 12-
FML 31_H07.gl_A003 Floral-Induced Meristem 1 (FMI) Sorghum
propinguum cDNA, mRNA sequence.
BF586903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             An EST database from Sorghum: floral-induced meristems
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.1%; Score 36.8; DB 12; Length 501; 56.7%; Pred. No. 25; tive 0; Mismatches 52; Indels 0
                                      PCR PRIMERS
FORWARD: T7-1 (AA TAC GAC TCA CTA TAG)
BACKWARD: T3 (ATT AAC CCT CAC TAA AG)
Seq primer: primer T3 (ATT AAC CCT CAC TAA AG).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          High quality sequence start: 9
High quality sequence stop: 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (2000)
Contact: Cordonnier-Pratt MM
               Email: schnable@iastate.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BF586903.1 GI:11679227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: mmpratt@uga.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sorghum propinguum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 68; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POLYA-No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             114
                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 24
BF586903/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ä
```

```
/organism="Sorghum propinguum"
/db_xref="taxon:132711"
/clone_lib="Floral-Induced Meristem 1 (FM1)"
/clone_lib="Floral-Induced Meristems; Vector:
/clone_lib="floral-Induced"//clone-Induced induced in floral-Induced induced in light (flowering is induced by short-day conditions): 16 days after being returned to the greenhouse under natural long days during late April/Cearly May, meristems were harvested The library was made from poly-A RNA in the cloning vector lambda ZAP II. Clones to be sequenced were prepared by mass excision."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (pases 1 to 672)

VodKin, L., Kelm, P., Shoemaker, R., Retzel, E., Khanna, A., Coryell, V., VodKin, L., Relm, P., Shoop, E., Pardinas, J., Liu, L. and Lewin, H. Erpelding, J., Raph, C., Shoop, E., Pardinas, J., Liu, L. and Lewin, H. A Functional Genomics Program for Soybean (NSF 9872565)

Unpublished (1999)

Context: Nacrassia AR203345 corresponding to Gm-c1028-1235 (5')

Context: VodKin, L.O., PI, A Functional Genomics Program for Soybean (NSF 9872565)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               http://www.incyte.com/reagents/catalog.jsp?page=clones/collaboratio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BI968888 672 Dp mRNA linear EST 23-OCT-2001
GM830006B20A01 Gm-r1083 Glycine max cDNA clone Gm-r1083-1946 3',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Glycine max
Marayota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   431 GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lewin, H. A., Director, Keck Center for Comparative and Functional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This clone is available through: Incyte Genomics, 4633 World Parkway Circle St. Louis, Missouri 63134. Phone (800) 430-0030 or (314) 427-3322 FAX: (314) 427-3324. Web site:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                University of Illinois
Edwin R. Madigan Bullding, 1201 W. Gregory, Urbana, IL 61801, USA
Tel: (217) 244-6147
Fax: (217) 333-4582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   124 CTTACCCTCCTTGTCCTTGGGTATTATATCAGGTATCCCTCCAGCACGACGACAAC 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 12; Length 540;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        54; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seq primer: 5'-TTTTTTTTTTTTTTT(A/C/G)-3'.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               138 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 36.6; DE
Pred. No. 28;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. .672
/organism="Glycine max"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           137 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Email: 1-vodkin@uiuc.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BI968888.1 GI:16343293
                                                                                                                                                                                                                                                                                                                                                                                                                                     mass excision.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 3.1%;
Best Local Similarity 56.1%;
Matches 69; Conservative
```

```
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loca
Matches
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
          /clone_lib="Gm-ri083-1946"
//clone_lib="Gm-ri084"
//clone_lib="Gm-ri094"
//clone_lib="Gm-ri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BI498039 499 bp mRNA linear EST 29-NOV-2001 sag15c08.yl Gm-c1080 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-c1080-1263 5' similar to TR:Q9R6UI Q9R6UI SQDX. ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Shoemaker, R., Kelm, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Beck, C., Bolla, T., Onderwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           391 GAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACG 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             451 CTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAA 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 13; Length 672;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          174 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 36.4; D
Pred. No. 33;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140.g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               511 TCCGGTAGACCGGTAAC 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  585 TGCCATATGCTTGGGAC 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BI498039.1 GI:15337383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 3.1%;
Best Local_Similarity 53.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       166 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence.
BI498039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 26
BI498039/C
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
```

õ 셤 ò 셤 ò

```
/note="Vector: pBluescript II SR+; Site_I: EcoRI; Site_2:
Xhoi; The mRNA was isolated from roots of 8 day old
'Bragd' supernodulating mutant NTSBS seedlings that were
infected with Bradyhizobium japonicum, strain USDA 110, 72
hours prior to harvest. Dr. Gary Stacey generously donated
the tissue. The roots were flash-frozen in liquid
nitrogen. Stratagnes's CDNA Synthesis Kit (catalog number
200401) was used to synthesize the CDNA. First-strand
synthesis was performed with 5-methyl dCTP, hence the
ligated CDNA was hemimethylated. A modification of
Stratagene's first-strand synthesis primer was used. An
anchor' nucleotide (V=A, C, or G) was added to the 3' end
of the primer [GAGAGGAGAGACAACTAGCTCGAG(T)18V] to
anchor the primer at the 5' end of the poly(A) tract.
After second-strand synthesis, the CDNA ends were filled
in with cloned Pfu DNA, ligated to EcoRI adapters and
subsequently phosphorylated. The CDNA was then
precipitated and redissolved in sterile, RNase.,
DNase-free water. The XhoI site within the first- strand
synthesis primer was then restricted by digestion with
XhoI from Promega (40U/ul); all XhoI sites in the CDNA
would be protected by their hemimethylated status. The
CDNA constructs were size fractionated with a 500bp
cutoff, using Sephacryl S-500 High Resolution (Pharmacia
Biotech) in a 2-mm diameter column and a bed volume of
approximately lm. The column eluent was precipitated
redissolved, and ligated into Stratagene's pBluescript
By Stratagene's The SDNA was constructed in the
by Stratagene's The SDNA was constructed by
By SDNA CONSTRUCTED BY DATE                                                                                                                                                                                                                                                                                                                                                                                                       This clone is available through: Resden, Invitrogen Corp. 2130 South Memorial Parkway Huntsville, AL 35801 For further information call: (800)-533-4363 or contact via email: ccu@resgen.com High quality sequence stop: 327.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       laboratory of Dr. Paul Keim and Dr. Virginia H. Coryell at
Northern Arizona University."
89 c 137 q 130 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /Lissue_type="Roots of 8 day old 'Bragg' supernodulating mutant NTS382 seedlings"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                391 GAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           368 GGATTATATCAGGAATACCTCCAGCACGTGCCGCCACCACAGGTATCCCTGAAGACATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
Public Soybean EST Project
Dupublished (1999)
Contact: Shoemaker R/Public Soybean EST Project
Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1810
Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Glycine max"
/db_xref="taxon:3847"
/clone="GENOME SYSTEMS CLONE ID: Gm-c1080-1263"
/clone_lib="Gm-c1080"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 13; Length 499;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 36.2; DB
Pred. No. 36;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /dev_stage="8 days old"
/lab_host="DH108"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      511 TCCGGTAGACCGGTAAC 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity 54.0 tes 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                499
```

ö

450

RESULT

셤

```
Hordeum vulgare subsp. vulgare.
Hordeum vulgare subsp. vulgare
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; Pooideae
; Triticeae; Hordeum.
; (bases 1 to 609)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AV836868 K. Sato unpublished cDNa library: Hordeum vulgare subsp. vulgare seedling leaves second leaf stage Hordeum vulgare subsp. vulgare cDNA clone basdl16, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone_lib="K. Sato unpublished cDNA library: Hordeum vulgare subsp. vulgare seedling leaves second leaf stage" /tissuc_type="seedling leaves" /dev_stage="seedling leaves" for 179 c 152 g 146 t 7 others
                                                                                                                                                                                                                                                        205 GGATTATATCAGGAATACCTCCAGCACGTGCCGCCACCACAGGTATCCCTGAAGACATCG 146
                                                                                                                                                                                                                                                                                                            451 CTTCAGCCAGTACCATACCAAAGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAA 510
                                                                                                                                                                                                                                                                                                                                                            145 CCICCAAAACTACAAAACCAAGCGICICIGACTGAAGGCAIGACAAATACAICICCAC 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        431 GGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGG
                                                                                                                                                                                                             391 GAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACG
                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Okayama University, Barley Germplasm Center
Chuo 2-20-1, Kurashlki, Okayama 710-0046, Japan
Email: kazsatoërib.okayama-u.ac.jp,
URL:http://www.rib.okayama-u.ac.jp/barley/
database:http://www.shigen.nig.ac.jp/barley/Barley.html.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Barley EST sequencing project in NIG and Okayama Univ
Unpublished (2001)
Contact: Kazuhiro Sato
Research Institute for Bloresources
                                                                                                         Length 516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 36; DB 10; Length 609;
pred. No. 42;
0; Mismatches 60; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Hordeum vulgare subsp. vulgare"
/cultivar="Haruna Nijo"
/db_xref="taxon:112509"
/clone="basd116"
                                                                                                                                                            Indels
                                                                                                         DB 13;
                                                                                                                                                            63;
                             122 t
                                                                                                                                                            0; Mismatches
                                                                                                         Score 36.2; |
Pred. No. 37;
University of Illinois)."
106 c 131 g 122
                                                                                                                                                                                                                                                                                                                                                                                                                        511 TCCGGTAGACCGGTAAC 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AV836868.1 GI:14528957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85 TGGCATATGCTTGGGAC 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 3.0%;
Best Local Similarity 54.5%;
Matches 72; Conservative (
                                                                                                         3.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    491 CATGACCACCAC 502
                                                                                                            Query Match 3.1
Best Local Similarity 54.0
Matches 74; Conservative
                                   ದ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 125
                                   157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sato, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AV836868
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
TITLE
JOURNAL
                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note_wost__burbos
/note_weetor: pBluescript II SK+; Site_1: EcoRI; Site_2:
XhoI; The cDNA library wms constructed from mRNA isolated
from 2-3 week old seedlings that were induced for symptoms
of SDS (Sudden Death Syndrome) disease by the
translocation of culture filtrate of Fusarium solani f.
sp. glycines (Plant Cell Report 18:375-380). Cultivar PI
56734 is partially resistant to the disease SDs. Plant
tissue (expanded leaves, folded leaves, and new shoots)
were collected at 1, 6, 24, and 48 hrs. after inoculation
and their mRNA pooled equally for cDNA construction. The
library was prepared using the Stratagene pBluescript II
SK(+) library construction kit. Complementary DNA was
synthesized from mRNA using a primer consisting of a
poly(d) sequence with an XhoI restriction site. EcoRI
adaptors were ligated to the blunt-ended cDNA fragments
from XhoI digestion. The cDNA insert is protected
from XhoI digestion is methylation during first strand
synthesis. The cDNA fragments were transformed into
the EcoRI-XhoI restriction site of the pBluescript
vector. The ligated cDNA fragments were incculated
by Shuxian Li (Glen Hartman lab, University of Illinois).
Library was constructed by Steve Clough (Lila Vodkin lab).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Shoemaker, R. Kelm, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, Shoemaker, R., Kelm, P., Vodkin, L., Kucaba, T., Martin, J., Beck, C., Ab., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Underwood, K., Steptce, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R. and Wilson, R.

Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: estéwatson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-4363 or contact: ccuéresgen.com web site:
                                                                                                                                    BM143281 51-NOV-2001 saj42b12.yl Gm-c1072 Glycine max cDNA clone SOYBEAN CLONE ID: Gm-c1072-2375 5' similar to TR:Q9R6U1 Q9R6U1 SQDX. ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; eudicotyledons; core eudicots; Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /tissue_type="seedlings induced for symptoms of SDS (Sudden Death Syndrome) disease" /dev_stage="2-3 weeks old" /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Www.resyer.-dORP from Gibco
High quality sequence stop: 421.
Location/Qualifiers
1.516
/organism="Glycine max"
//db_xrefe="taxon:3847"
/clone="some clo72"
/clone="forested from clo72"
                                                                                                                                                                                                                                                   BM143281
BM143281.1 GI:17153348
                  TGGCATATGCTTGGGAC 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                www.resgen.com
                                                                                                                                                                                                                                                                                                                                                            Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Glycine.
                                                                                                                                                                                                                                                                                                                                    soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
COMMENT
                                                                                                                       BM143281/c
                                                                                                                                                                                                                                                   ACCESSION
VERSION:
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
```

ö

452 490

512

us-09-674-277-2.rst

```
GSS 26-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Note-Notice: DANY-SPORT6 (Life Technologies); Site_1:
Not1; Site_2: Sal1; CDNA made by oligo-dT priming.
Lirectionally cloned using the following adaptors:
5'-TCGACCCAGGCTCGG-3' and
5'-GACTAGTTCTAGATCGCGAGCGGCCCCT(15)-3'. Size selected >
1 kb for average insert length 1.7 kb. This. is a primary library, non-amplified. Library constructed by Life Technologies and donated by J. Lupski, M.D./Ph.D. (Baylor College of Medicine) and is available through Life
                                                                                                                                                                                                                                                                               In Unpublished (1999)

Contact: Robert Strausberg, Ph.D.
Email: gapbs-remail.nih.gov
Tissue Procurement: Dr. James R. Lupski
CDNA Library Preparation: Life Technologies, Inc.
CORP distribution: MGC clone distribution information can be http://image.lihi.gov
Plate: LiAM13560 row: e column: 04
High quality sequence start: 62
High quality sequence start: 62
High quality sequence start: 62
Location/Qualifiers
Location/Qualifiers
Location/Qualifiers
Location/CDNA xref="Laxon:9606"
//DLCCETTON: ACCOUNT CONTROL CONT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; Euteleostomi;
Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drosophila melanogaster genome survey sequence T7 end of BAC BAC BACALIPO1 of DrosBAC library from Drosophila melanogaster (fruit fly), genomic survey sequence.
                                                                                                                    Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostor
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 974)
NIH WGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               525 AACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCAGGTGTTCTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Drosophila melanogaster
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 974;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="IMAGE:6179307"
/clone_lib="Lupski_dorsal_root_ganglion"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /tissue_type="dorsal root ganglia"
/dev_stage="adult, 36 yr"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.0%; Score 35.8; DB 14;
55.8%; Pred. No. 51;
.ve 0; Mismatches 27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 244 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              256 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 585 TGCTGACGCAGACGTGCTT 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      418 CTCTGGGGAAGACTGGCTT 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drosophila melanogaster.
        BQ878757
BQ878757.1 GI:22270765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AL108088.1 GI:5628392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Technologies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best_Local Similarity 65.8%;
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           246 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              228
                                                                                            human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 31
CNS017IM/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
     ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                          TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                       GSS; genome survey sequence.

GSS; genome survey sequence.

Tetraodon nigroviridis.

Tetraodon nigroviridis.

Tetraodon nigroviridis.

Eukaryota: Metazoa: Chordata: Craniata; Vertebrata; Euteleostomi;

Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;

Actinopterygii; Neopterygii; Percomorpha; Tetraodontiformes;

Tetraodontidae; Tetraodon.

E i (bases i to 849)

S Roest-Crollius, H., Jaillon, O., Dasilva, C., Bouneau, L., Fisher, C., Bernot, A., Fizames, C., Wincker, P., Brottier, P., Quetier, F., Saurin, W. and Weissenbach, J.

Human gene number estimate provided by genome wide analysis using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genoscope.

Direct Submission

Submitted (12-APR-2000)

This sequence is a single read and was generated as part of a large scale clonne-end sequencing project of the Tetraodon nigroviridis genome. For more information, please take a look at http://www.genoscope.cns.fr/Tetraodon.

Location/Qualifiers
                                                                                                                                         CNSU3IJD 849 bp DNA linear GSS 17-MAY-2000 Terracodon nigroviridis genome survey sequence PUC-Ori end of clone 019012 of library G from Tetracodon nigroviridis, genomic survey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BQ878757 974 bp mRNA linear EST 16-AUG-2002 AGENCOURT_8121988 Lupski_dorsal_root_ganglion Homo sapiens CDNA clone IMAGE:6179307 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           231 GGCCTGGGACGGGGGGACAAGGACTGCGCCCACCTGCACGAGGACGGGCGTCTCAACGAC 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      518 GACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGGCTCATTCCCAGGTG 577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            578 TICTGTCTGCTGACGCAGACGTGCTTCGTTTTTCTTCACGCCCGGCGCCCACCACGAGCCA 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 (bases 1 to 849)
Roest-Crollius, H., Jaillon, O., Dasilva, C., Fizames, C., Fisher, C.,
Bouneau, L., Billault, A., Quetier, F., Saurin, W., Bernot, A. and
Welssenbach, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Charaterization and repeat analysis of the compact genome of the freshwater pufferfish Tetraodon nigroviridis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Genoscope sequence ID : COBG029BB06SP1~end :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 17; Length 849;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                82; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     638 GCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .849
.Coganism="Tetraodon nigroviridis"
.db_xref="taxon:99883"
./clone="029C12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       159 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 35.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    274 g
                                                                                                                                                                                                                                                             AL245650
AL245650.1 GI:7966662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone_lib="G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 849)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       228 c
  513 CATTGCAAACAC 524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity 50.9
Les 85; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PUC-Ori"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       đ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genoscope
                                                                                                                                                                                                                                  sedneuce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BQ878757/c
LOCUS
DEFINITION
                                                                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 30
                                                                                      RESULT 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                              CNS031JD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
```

ö

```
63 t
                                                                                                                                                                                                                                                                                                                      0; Mismatches
             /organism="Danio rerio"
                                                                                                                                                                                                                              93 g
                                                                                                                                                                                                              Express vector.
94 c 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BG565743.1 GI:13573396
                                                                                                                                                                                                                                                                                   3.0%;
                                                                                                                                                                                                                                                                                                                        87; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA sequence.
                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                human.
                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 87
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BG565743/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ron,c., Mably,J.D., Dempsey,A.A., Hwang,D.M., Fishman,M.C. and Liew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AW453731 320 bp mRNA linear EST 17-FEB-2000 zehl0506 Zebrafish Embryonic Heart cDNA Library Danio rerio cDNA 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .C.C.
Identification and Characterization of Expressed Sequence Tags from
an Embryonic Zebrafish Heart cDNA Library
Unpublished (1999)
Contact: Liew CC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Danio rerio
kukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii; Teleostel; Ostariophysi; Cypriniformes
; Cyprinidae; Danio.
                                    Direct Submission
Submitted (23-UDL-1999) Genoscope - Centre National de Sequencage :
BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr
BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr
Web : www.genoscope.cns.fr)
Determination of this BAC-end sequence was carried out as part of a collaboration with the European Drosophila Genome Project (EDGP) - http://www.edgp.ebi.ac.uk - This Drosophila melanogaster BAC
library (Dros BAC) was made by Alain Billaud at CEPH (Centre d'Etdué du Polymorphisme Hummain) with funding provided by a MRC
project grant. The DNA was prepared from embryos by Alain Bucheton and Genevieve Payan. It has been constructed in the vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75 CTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGATAAATTACTCC 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15 AAAAAAGCCAAAATAAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAAGTAGGCCTGTT 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 948;
                                                                                                                                                                                                                                                                                                                                                                                                    202 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BACKWARD: 5' CCAGTGAATTGTAATACGACTCACTATAGGGCG 3' Seq primer: 5' GAAATTAACCTCACTAAAGGG 3'.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCAAGCTCGAAATTAACCCTCACTAAAGGG 3'
                                                                                                                                                                                                                                                                                       /organism="Drosophila melanogaster"
/db_xref="taxon.7227"
/clone="BACM7E01"
/clone_lib="DrosBAC"
/plasmid="pBeloBAC11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brigham and Women's Hospital
Harvard Medical School
75 Francis St. Boston, MA 02115, USA
Tel: 617728915
                                                                                                                                                                                                                                                                                                                                                                                                      ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.0%; Score 35.6; DE 40.2%; Pred. No. 58; ative 25; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                      376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cliew@rics.bwh.harvard.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                          86 9
                                                                                                                                                                                                                                                                                                                                                                                         /note="end : T7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AW453731.1 GI:6994589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 320)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | |:||||
354 TATGAGGSAAAA 343
                                                                                                                                                                                                                                                                                                                                                                                                          80
C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 135 GTTACCGGAAAA 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                53; Conservative
                                                                                                                                                                                                                                                                                 . 948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PCR PRimers
FORWARD: 5' G
BACKWARD: 5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    zebrafish
                                                                                                                                                                                                                                           pBeloBAC11
                          Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S:
Matches 53,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 32
AW453731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
       REFERENCE
AUTHORS
                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                              FEATURES
                                                                                                                 COMMENT
```

ద

g ö 셤 ö

ò

٠.

```
// Organism="Homo sapiens"
//db_xref="taxon:9606"
//db_xref="taxon:9606"
//dclone="InhAGE:472378"
//clone=lib="NHH MGC_36"
//lab_host="DH10B (TI phage-resistant)"
//note="Organ: liver; Vector: pDNR-LIB (Clontech); Site_1:
//note="Organ: liver; Vector: pDNR-LIB (Glontech); Site_1:
//note="Organ: liver; Vector: pDNR-LIB (Glontech); Site_1:
//note="Organ: liver; Vector: pdn as follows: 5" adaptor
3' adaptors were used in cloning as follows: 5" adaptor
3' adaptors sequence:
5' -ATTCTAGAGGCGCGAGGCGATGGCC3' and 3' adaptor sequence:
5' -ATTCTAGAGGCGCGGAGGGCGCGAAGG-dT(30)BN-3' (Where B = A, C, or G and N = A, C, C, Or T). Average insert size 1.85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BG565743 831 bp mRNA linear EST 10-APR-2001
602589078F1 NIH_MGC_76 Homo sapiens cDNA clone IMAGE:4723338 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       351 ACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCG 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               155 ACATCAACTACCTGGACAGAACACCCCCAACCGCCCGCTGCGCACCATCAAGGGTCACA 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 831)
1 (hases 1 to 831)
1 (hard.nchtp://mgc.ncd.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: CLONETECH Laboratories, Inc.
/db_xref="taxon:7955"
/db_xref="taxon:7955"
/clone_lib="zebrafish Embryonic Heart cDNA Library"
/dev_zstage="embryonic day 3 post-fertilization"
/dev_zstage="coli Xnl-Blue mrF'"
/note="coli Xnl-Blue mrF'"
/note="Organ: heart; Vector: Lambda ZAP Express; Site_l:
EcoRI; Site_2: Xhoi; mRNA was purified from embryonic
zebrafish hearts (3 day post-fertilization). cDNA was
synthesized using a Xhoi-Oligo dT adaptor-primer. EcoRI
adaptors were ligated, followed by digestion with Xhoi,
for directional cloning into pre-digested lambda ZAP
Everses vector. "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cDNA Library Preparation: CLONETECH Laboratories, Inc.
CDNA Library Preparation: CLONETECH Laboratories, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
http://mage.llnl.gov
Plate: LLCM1582 row: k column: 19
Plate: LLCM1582 row: k column: 19
High quality sequence stop: 720.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          291 ATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      411 CCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTAC 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 35.4; DB 10; Length 320; Pred. No. 58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            86;
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                     용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                            ö
                                                                                                                                                                        1004 TCCTGCTATATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCC 1063
                                                                                                                                                                                                                                    1064 GATAATCCGTCGAAGTCTGAGGATGGAAGGTGAAGGTGAAGGCTGTTCCTGAAAGGAATAAA 1123
                                                                                                                                                                                                                                                                                                                                                                                                          EST 14-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryotta; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona; Phlebobranchia; Cionidae; Ciona.

1 (basea I to 581)

Satoh, N., Satou, Y., Kohara, Y. and Shin-i, T.

Expressed genes in Ciona intestinalis
Unpublished (2000)

Contact: Nori Satoh

Department of Zoology

Kyoto University
Sakyo-ku, Kyoto, Kyoto (60-8502, Japan

Fai: 81-75-753-4081

Fax: 81-75-705-1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        957
                                                                                                                                                                                        AV987761
AV987761 Nori Satoh unpublished cDNA library, tailbud embryo Ciona intestinalis cDNA clone citb18121 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         554
kb (range 1.0-4.0 kb). 15/15 colonies contained inserts by PCR. This library was enriched for full-length clones and was constructed by Clontech Laboratories (Palo Alto, Note: this is a NIH_MGC Library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="Nori Satoh unpublished cDNA library, tailbud
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         838 TTACCGGTGTCCTGACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      898 CAATGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                          Length 831;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 10; Length 582;
                                                                                                         Score 35.4; DB 12; Length Pred. No. 65; 0; Mismatches 71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: satoh@ascidian.zool.kyoto-u.ac.jp

    .582
    /organism="Ciona intestinalis"
    /db_xref="taxon:7719"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tisiue_type="whole animal"
/dev_stage="tailbud embryo"
/note="Vector: pBluescript SK"
136 c 133 g 173 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 35.2; DB Pred. No. 71; 0; Mismatches
                                                                                                                                                                                                                                                                                                1124 AGTGACATCATGCCCTCTTTTTTTGGGCTT 1152
                                                                                                                                                                                                                                                                                                                 266 ATGGATTTTATGTTCCTTTTGTTTCACTT 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone-"citb18121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AV987761.1 GI:19476532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    958 TTTGTCTGACAATAGT 973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3.0%;
                                                                                                         Query Match 3.0%;
Best Local Similarity 52.3%;
Matches 78; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ciona intestinalis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                        AV987761
                                                               272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                            RESULT 34
AV987761
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
```

```
Uniect Submission

Submitted (11-JUN-1999) Genoscope - Centre National de Sequencage :
BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr
- Web : www.genoscope.cns.fr)

Determination of this BAC-end sequence was carried out as part of a collaboration with the Berkeley Drosophila Genome Project (BDGP).

The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitily.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Osoegawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial EcoR Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial EcoR of Information of Drosophila DNA provided by the BDGP from the isogenic strain y2: cn bw sp, the same strain used for the BDGP's Pl and EST libraries. A more detailed description of the library and how to order individual BAC clones, the entire library, or filters for hybridization from the BACPAC Resource Center can be found at http://Dacpac.med.buffalo.edu/drosophila_bac.htm.
                                                                                                                                         Drosophila melanogaster genome survey sequence TET3 end of BAC:
BACK46P19 of RPCI-98 library from Drosophila melanogaster (fruit
AL078714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       875 THMICCCMMINIMIMIMIMIMAAAMMAAMMINIMIMIMIMITITITITIHMAAMAYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 434 CACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       494 GACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        995 МНММИМИМИМТІТНАКНІТІТНІТІТУМАМСМІТНІММИМИМИМИМАМИМССИСИСИС
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             554 CACATCTCCGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     614 ACGCCCGGCCCCACCACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           674 TACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGATAAG
                                                                                                                                                                                                                                                                                                                                                                Drosophila melanogaster
Eukaryota: Metazoa: Arthropoda: Hexapoda; Insecta; Pterygota;
Neoptera: Endotterygota: Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              406 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Drosophila melanogaster"
/db_xref="taxon:727"
/clone="BACR48P19"
/clone=1bb="RPCI-98"
/note="end : TET3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.0%; Score 35.2; DB 17;
15.4%; Pred. No. 76;
ative 125; Mismatches 134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            151 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69 d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative 125;
                                                                                                                                                                                                                                                                                                                                          Drosophila melanogaster.
555 ATTGTGAGATGCTGGT 570
                                                                                                                                                                                                                                                                                     AL078714.1 GI:5102004 GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ပ
မ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 Similarity
47; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                   RESULT 35
CNSOOLT2/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                     VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
```

```
Gm-c1016-7678 5' similar to SW:SUSY_SOYBN P13708 SUCROSE SYNTHASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      128 g
                                              AW509231.1 GI:7147309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Erpelding.
                                                                                                                                                                      (bases 1 to 432)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 55.9<sup>3</sup>
Matches 66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97
                   mRNA sequence.
                                                                                                 Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         103
                                                                                  soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 38
BQ611687/c
                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
COMMENT
                                                                                                                                                                         REFERENCE
                                   ACCESSION
                                                VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS AW509231 43.2 bp mRNA linear EST 03-DEC-2001 DEFINITION sh92h11.y1 Gm-c1016 Glycine max cDNA clone GENOME SYSTEMS CLONE ID:
                                                                                                               BG538455 861 bp mRNA linear EST 03-APR-2001 602567161F1 NIH_MGC_77 Homo sapiens CDNA Clone IMAGE:4691799 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         305 TICCGGICGGGAIAAAAATCGCGCAGIGCGCCGGICCAIGCAGACACAICCCCCACGGG 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: gapbs-refamilinih.gov
Tissue Procurement: CLONTECH Laboratories, Inc.
CDNA Library Preparation: CLONTECH Laboratories, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://mage.lln.gov
Plate: LLCMISII row: i column: 16
High quality sequence stop: 433.
                                                                                                                                                                                                                                       Euteleostomi;
                                                                                                                                                                                                                                                                      1 (bases 1 to 861)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Gaps
                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutele¢
Mammalia; Butheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 35; DB 12; Length 861;
Pred. No. 85;
0; Mismatches 70; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. .861
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:4691799"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  425 GATAACGGGCACGCCGGAGACTGACGC 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               473 TCACGTGTCCATGCTCGAGCCGGATGC 447
                                                                                                                                                 mRNA sequence.
BG538455
BG538455.1 GI:13530688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 3.0%;
Best Local Similarity 52.4%;
Matches 77; Conservative
                             755 CMCMMM 750
                                                                                                                                                                                                                               Homo sapiens
         CGGAAC 739
                                                                                                                                                                                                               human.
           734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                     RESULT 36
BG538455/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 37
AW509231/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                   DEFINITION
                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                ACCESSION
                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
           ö
                                        임
```

```
1. ..45.

/ Organism="Glycine max"
/ Ob_xref="taxon:3847"
/ Clone="cENOME SYSTEMS CLONE ID: Gm-c1016-7678"
/ Clone="ib="cm-c1016"
/ Clone="ib="cm-c1016"
/ Clone=lib="cm-c1016"
/ Lissue_type="immature flowers of field grown plants"
/ Lissue_type="immature flowers of field grown plants"
/ Lissue_type="immature flowers of field grown plants."
/ This cDNA library was construction plants. The cDNA library was prepared using the Stratagene pBluescript II
/ XR library construction kit. Complementary DNA was synthesized from mRNA using a primer consisting of a poly (dT) sequence with a XNOI restriction site. EcoRI adapters were ligated to the blunt-ended cDNA fragments followed by XNOI digestion. The cDNA fragments were transformed into the EcoRI-XNOI restriction site of the pBluescript vector. The ligated cDNA fragments were transformed into XLIO-Gold host cells. This library was constructed by Dr. Randy Shoemaker and Dr. John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tel: 314 286 1800
Fax: 314 286 1810
Fax: 314 286 1810
Fax: 314 286 1810
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-4363 or contact via email: ccu@resgen.com
Insert Length: 1037 Std Error: 0.00
Seq primer: -40RP from Glbco
High quality sequence stop: 431.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           387 TTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Shoemaker, R., Keim, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Yayile, T., Underwood, K., Steptoe, M., Theising, B., Martin, J., Bock, C., Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Bowers, R., Watter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, Public Soybean EST Project
Eukaryora; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       447 GACGCTTCAGCCAGTACCATACCAAACGGTTCATTTTCCGAAGGCATGACCACCACAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contract: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 432;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.9%; Score 34.8; DB 10;
55.9%; Pred. No. 89;
tive 0; Mismatches 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104 t
```

us-09-674-277-2.rst

```
RESULT 39
AW459606/c
                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: est@watson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-4363 or contact: ccu@resgen.com web site:
www.resgen.com
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BCORI adapters (5'0H-NATTCGGCACGAG and 3'GCCGTGCTCP) were ligated to the blunt-ended cDNA fragments followed by XhoI digestion. The CDNA fragments were directionally cloned into the ECORI XhoI restriction sites of the paluescript vector. The vector was previously dephosphorylated. The ligated cDNA fragments were transformed into DHIOB by electroporation. Library is in LB medium with ampicillin and glycerol 88. Average insert size: 800 bp."
                                                                                                                                                                                                                                                                                                                                            Shoemaker, R., Kein, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Katter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R. and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
  EST 26-JUN-2002
                                                                                                                                                                                                                    Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papillonoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Vector: pBluescript II SK+; Site_I: EcoRI; Site_2: XhoI; The mRNA was prepared using polyatract mRNA system from PROMEGA. The cDNA was prepared using the STRATAGENE kit. Complementary DNA was synthesized from mRNA using a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             387 TTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    138 TGCACAATGATCTCAGCAGGACCACTTGCATGTGGGGGAATGTTGGCAAGCCGCAAGTC 279
BQ611687 445 bp mRNA linear EST 26-JUN-200 sap63g01.y1 Gm-c1087 Glycine max cDNA clone SOYBEAN CLONE ID: Gm-c1087-5306 5' similar to SW:SUSY_SOYBN P13708 SUCROSE SYNTHASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              447 GACGCTTCAGCCAGTACCATACCAAAGGCTTCATTTTCGAAGGCATGACCACACA 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer consisting of a poly(dT) sequence with a xhoi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 14; Length 445;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. 445
/drgahlam="Glycine max"
/db_xref="taxon:3847"
/clone="SOXBEAN CLONE ID: Gm-c1087-5306"
/tissue_type="Roots"
/lab_host="DH108"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 34.8; DE
Pred. No. 89;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seq primer: -40RP from Gibco.
Location/Qualifiers
                                                                                                                           BQ611687.1 GI:21601356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.9%;
                                                                                                                                                                                                                                                                                                                             (bases 1 to 445)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                 ;, mRNA sequence.
BQ611687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                       шaх
                                                                                                                                                                          soybean.
                                                                                                                                                                                                  Glycine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best_Local
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                           ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. ..46 / June 1. June 1. June 1. June 1. June 1. June 1. ..46 / J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: est@watson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-436 or contact via email: ccu@resgen.com
Insert Length: 1002
Seq primer: -40RP from Gibco
High quality sequence stop: 409.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Shoemaker, N. Kehn, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna Shoemaker, R., Kehn, P., Vodkin, L., Erpelding, J., Martin, J., Beck, C., A., Bolla, B., Marra, M., Hiller, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Kitter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, P., Waterston, R. and Wilson, R.
AW459606 446 bp mRNA linear EST 03-DEC-2001 sh89c12.yl Gm-c1016 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-c1016-7343 5' similar to TR:024302 024302 SUCROSE SYNTHASE ;,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  387 TTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             334 IGCACAAIGAICTCAGCAGGACCACCAITGCAIGIGGCGAAIGIIGGCAAGCCGCAAGIC 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACACAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       274 ATGCCTCAACCACTGTCAAACCAAAAGCCTCGTATACAGCAGGCTGCACGAAAGCAC 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108,
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 446;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 34.8; DB
Pred. No. 89;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  133 g
                                                                                                                                                                                                    AW459606.1 GI:7029823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Erpelding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (1999)
Contact: Shoemaker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                    mRNA sequence.
AW459606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                   soybean.
                                                                                                                                                                                                                                                                                                                         Glycine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Glycine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Simi
Matches 66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                     DEFINITION
                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
COMMENT
                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
```

DEFINITION

ACCESSION VERSION KEYWORDS SOURCE ORGANISM REFERENCE AUTHORS

TITLE

COMMENT

```
ದ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Glycine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   soybean.
                                                                                                                                                                                          Query Match
Best Local Simi
Matches 66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 41
AW620859/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /iab_nost="klu-gold"
//note="Vector: pBluescript II XR; Site_1: ECORI; Site_2:
XhoI; Root cDNA. The mRNA was isolated from entire roots
of 8 day old "Williams' seedlings which were propagated on
paper towels with distilled water. Stratagene's CDNA
paper towels with distilled water. Stratagene's CDNA
Synthesis Kit (catalog #200401) was used to synthesize the
cDNA: First- strand synthesis primer was used
dCTP, hence the ligated cDNA is hemimethylated.
Stratagene's first-strand synthesis primer was used
[GAGAGAGAGAGAGACAACTACTCCAG(T)-18]. After
second-strand synthesis, the cDNA ends were 'polished'
with clone Ptu DNA polymerase, ligated to EcoRI adapters,
and phosphorylated. The XhoI site within the first-strand
synthesis primer was restricted by digestion with XhoI;
all XhoI sites in the cDNA would be protected by their
hemimethylated status. The cDNA constructs were
size-fractionated with a 500bp cutoff, using GibcoRL Life
Technologies' cDNA Size Fractionation column. The column
Teluent was then ligated into Stratagene's plaluescript II
XR Predigested vector (pBluescript II SK(+) that had been
digested with EcoRI and XhoI, and phosphorylated). Both
the white and blue colonies appear to contain recombinant
plasmids with cDNA inserts. Blue colonies 9n=15) have been
sequenced, and possess putative cDNA inserts. This library
was constructed by Dr. Paul Kelm & Virginia H. Coryell,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Shoemaker, R., Relm, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, Shoemaker, R., Relm, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Underwood, K., Steptce, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R. and Wilson, R. Dublic Soybean EST Project Unpublished (1999)
Contact: Shoemaker RyPublic Soybean EST Project
Washington University School of Medicine
                                                       A1496532 478 bp mRNA linear EST 30-NOV-2001 sbl3a03.yl Gm-c1004 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-c1004-8645 5' similar to SW:SUSY_PHAAU Q01390 SUCROSE SYNTHASE
                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Trace considered overall poor quality
Possible reversed clone: similarity on wrong strand This clone is
available through: ResGen, Invitrogen Corp. 2130 South Memorial
parkway Huntsville, AL 35801 For further information call: (800
)-533-4363 or contact via email: ccuēresgen.com
Seq primer: -408P from Gibco
High quality sequence stop: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. 478
/organism="Glycine max"
/organism="Glycine max"
/clone="GENOME SYSTEMS CLONE ID: Gm-c1004-8645"
/clone_lib="Gm-c1004"
/tissue_ripe="root"
/lab_host="Xil0-Gold"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Email: est@watson.wustl.edu
                                                                                                                                                              ;, mRNA sequence.
AI496532
AI496532.1 GI:4397535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                       Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POLYA-NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Glycine.
                                                                                                                                                                                                                                                                                                        soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
RESULT 40
AI496532/c
```

FEATURES

```
/note—"Vector: pBluescript II XR; Site_I: ECORI; Site_2: XhoI; This cDNA library was constructed from mRNA isolated from Term 'Desloy 5710' seedling roots. Tissue was taken from 7-day-old seedlings that had been propagated on paper towels with distilled water. Tissue was taken from the tip, to the first lateral root, usually about 3cm from the tip, and flash-frozen in liquid nitrogen. Stratagene's cDNA synthesis Kit (catalog number 200401) was used to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1800
Email: estewatson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-4363 or contact via email: ccuéresgen.com
Insert Length: 838 Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Shoemaker, R., Kelin, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Mylle, T., Underwood, K., Steptoe, M., Theising, B., Allen, M. Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Sowars, K., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R. and Wilson, R.

Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AW620859 507 bp mRNA linear EST 03-DEC-2001 sj47ell.yl Gm-c1033 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-c1033-453 5' similar to SW:SUSY_SOYBN P13708 SUCROSE SYNTHASE ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
Department of Biology, Box5640, Northern Arizona University, Flagstaff, Az 86011, Phone: 520-523-1078 (Dr. 9aul Kaim), 520-523-1372 (Virginia H. Coryell), Fax: 520-523-7500, email: paul.keim@nau.edu, virginia.coryell@nau.edu"
                                                                                                                                                                                                                                                                                                                                                                                                                            387 TICTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         342 recacaargarcreaceaceaceacearerreresegaargreseaagec 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     447 GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACAC 504.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      282 ATGGCCTCAACCACTGTCAAACCAAAAGCCTCGTATACAGCAGCTGCACGAAAGCAC 225
                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /d_zref="taxon:384""/clone="cENOME SYSTEMS CLONE ID: Gm-c1033-453"/clone_lib="Gm-c1033"
                                                                                                                                                                                                                                                                                                                                                           ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="'Desloy 5710' seedling roots"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                             Length 478;
                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
                                                                                                                                                                                                                                                                                                                                                              52;
                                                                                                                                                                                                                                                                                             DB 9;
                                                                                                                                                                                        115 t
                                                                                                                                                                                                                                                                                         2.9%; Score 34.8; DE 55.9%; Pred. No. 90; Live 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Glycine max"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           High quality sequence stop: 419.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                           148 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AW620859.1 GI:7327061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 507)
                                                                                                                                                                                           98
C
                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA sequence.
AW620859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Glycine max
                                                                                                                                                                                                                                                                                                                                 Similarity
```

```
127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            human.
                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 43
AQ662456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 512)
Maharas,G.G., Wallace,J.C., Smith,K., Swartzell,S., Holzman,T.,
Keller,A., Shaker,R., Furlong,J., Young,J., Zhao,S., Adams,M.D. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AQ785148 512 bp DNA linear GSS 03-AUG-1999 HS_2159_Al_B06_T7C CIT Approved Human Genomic Sperm Library D Homo Saplens genomic clone Plate=3159 Col=11 Row-C, DNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              387 ITCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Clones may be purchased from Research Genetics (info@resgen.com). BAC end Web Server: http://www.htsc.washington.edu
Plate: 3159 row: C column: 11
Seq primer: T7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         447 GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         139 AIGGCCTCAACCACTGTCAAACCACAAAGCCTCGTAIACAGCAGCAGGCTGCAAAAGCAC 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence-tagged connectors: A sequence approach to mapping and scanning the human genome Proc. Natl. Acad. Sci. U.S.A. 96 (17), 9739-9744 (1999) 99380589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 2.9%; Score 34.8; DB 10; Length 507; Best Local Similarity 55.9%; Pred. No. 91; Matches 66; Conservative 0; Mismatches 52; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      401 Queen Anne Avenue North, Seattle, WA 98109, USA
Tel: (206) 616-5618
Fax: (206) 616-3887
Email: jwallace@u.washington.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Mahairas GG, Wallace JC, Hood L
High Throughput Sequencing Center
University of Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AQ785148.1 GI:5692772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo saplens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            199
                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AQ785148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
```

ð 음 ð

```
Contact: maintais Set, Wallace UC, HOOG LA
High Throughput Sequencing Center
University of Washington
University of Washington
401 Queen Anne Avenue North, Seattle, WA 98109, USA
Tel: (206) 616-3618
Fax: (206) 616-3887
Email: jwallace@u.washington.edu
Clones are derived from the human BAC library RPCI-11. For BAC
library availability, please contact Pieter de Jong
(pieter@dejong.med.buffalo.edu). Clones may be purchased from
BACPAC Resources (http://bacpac.med.buffalo.edu/ordering_bac.htm)
or from Resear h Genefics (info@resgen.com). BAC end Web Server:
http://www.htsc.washington.edu
Seq primer: 1031 row: I column: 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 514)
Mahalras, G.G., Wallace, J.C., Smith, K., Swartzell, S., Holzman, T.,
Keller, A., Shaker, R., Furlong, J., Young, J., Zhao, S., Adams, M.D. and
Hood, L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSS 23-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              960 TGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTG 1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161 TGTGTGCACCGAGGTGGCTGGGGTTATAAATGCAGCTGACCCAAGATACTGTTCTGG 220
                                                                                              /organism="Homo sapiens"
/db_xref="taxon:9606"
/db_xref="plate=3159 Col=11 Row=C"
/clone_lib="CIT Approved Human Genomic Sperm Library D"
/sex="male"
                                                                                                                                                                                                                                                            /note="Organ: sperm; Vector: pBeloBAC11; BAC Clones in E-Coli DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              900 ATGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           514 bp DNA linear GSS 23-JUN HS_5455_A2_E02_T7A RPCI-11 Human Male BAC Library Homo sapiens genomic clone Plate=1031 Col=4 Row=I, DNA sequence.
AQ662456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence-tagged connectors: A sequence approach to mapping and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           scanning the human genome
Proc. Natl. Acad. Sci. U.S.A. 96 (17), 9739-9744 (1999)
99380589
                                                                                                                                                                                                                                                                                                                                                                                                                 Length 512;
                                                                                                                                                                                                                                                                                                                        11 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                 DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Mahairas GG, Wallace JC, Hood L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="Plate=1031 Col=4 Row=I"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1020 TCATGGCCACTATGGCAGATGACCAGATCA 1049
                                                                                                                                                                                                                                                                                                                        133 t
                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
2.9%; Score 34.8; DE
Best Local Similarity 52.0%; Pred. No. 91;
Matches 78; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      221 ATGIGCACCIGIGIGGCIGCCAAGACCA 250
                        High quality sequence stop: 512.
Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           High quality sequence stop: 514.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                  117 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AQ662456.1 GI:5170224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Class: BAC ends
BAC ends
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
```

ORIGIN

ŏ q ŏ g

셤 à

```
Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AW279073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  soybean.
                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 45
AW279073/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: est@watson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-435 or contact via email: ccu@resgen.com
High quality sequence stop: 485.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 523)
Shoemaker, W., Kelm.P., Vodkin,L., Erpelding,J., Coryell,V., Khanna Shoemaker,R., Kelm.P., Vodkin,L., Kucaba,T., Martin,J., Beck,C., A., Bolla,B., Marra,M., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R. and Wilson,R.
                                                                   donor
                                                                                                                                                                                                                                                                                                                                                                                                           960 IGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTG 1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BE440931 52.91 Gm-c1043 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-c1043-1631 5' similar to SW:SUSY_SOYBN P13708 SUCROSE SYNTHASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Vector: pT713Pac (Pharmacia); Site_1: EcoRI; Site_2: NotI; This cDNA library was constructed from mRNA isolated from hypocotyl and plumule tissues of seeds
                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                    959
                                                                                                                                                                                                                                                                                                                                                             82 ATCCGAGCACACACCTGGCTAAGTGGCCAGACTTATTGTCTTTACTGGTATTTTAGGTTTTC 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                        142 TGTGTGCACCGAGGTGGCTGGGGTTATAAATGCAGCTGACCCAAGATACTGTTCTTCAG 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="Hypocotyl and Plumule, germinating seeds" /lab_host="DH10B"
                                   /note="Vector: pBACe3.6; Site_1: EcoRI; Site_2: EcoRI; Male blood DNA was isolated from one randomly chosen do and partially digested with a combination of EcoRI and EcoRI Methylase. Size selected DNA was cloned into the pBACe3.6 vector at EcoRI sites"
                                                                                                                                                                                                                                                                                                                    900 ATGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTT
                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Glycine max"
/db_xref="taxon:384"
/clone="GENONE SYSTEMS CLONE ID: Gm-c1043-1631"
/clone_lib="Gm-c1043"
                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                              Length 514;
/clone_lib="RPCI-11 Human Male BAC Library"
                                                                                                                                                           4 others
                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1999)
Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
                                                                                                                                                                                                                                                                       72;
                                                                                                                                                                                                                            DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1020 TCATGGCCACTATGGCAGATGACCAGATCA 1049
                                                                                                                                                           132 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                202 ATGTGCACCCTGTGTGGCTGCCAAGACCA 231
                                                                                                                                                                                                                            Score 34.8; D
Pred. No. 91;
0; Mismatches
                                                                                                                                                         125 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BE440931
BE440931.1 GI:9440426
                                                                                                                                                                                                                              2.9%;
                       /sex="male
                                                                                                                                                              130 c
                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Glycine max
                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  soybean
                                                                                                                                                                                                                                                                            78;
                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                        Best Local
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 44
BE440931/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
```

```
germinated for three days of the cultivar Williams. Complementary DNA was synthesized from mRNA using a primer consisting of a poly(dT) sequence with a NotI restriction site. EcoRI adapters were ligated to the blunt-ended cDNA fragments followed by digestion with EcoRI and NotI. The ECORI-NotI restriction site of the pT773-Pac vector. The ligated cDNA fragments were directionally cloned into the ligated cDNA fragments were transformed into DH10B host cells (Gibco BRL). This library was constructed by Dr. Randy Shoemaker.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            527 bp mRNA linear EST 02-DEC-2001 019 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: similar to SW:SUSY_SOYBN P13708 SUCROSE SYNTHASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Shoemaker, R., Keim, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wille, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Watterston, R. and Wilson, R., Theising, Cardenas, M., McCann, Public Soybean EST Project
Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Enkaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     228 TGCACAATGATCTCAGCAGGACCACCATTGCATGTGGCGAATGTTGGCAAGCCGCAAGTC 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /lab_host="DH10B (Gibco BRL)"
/note="Vector: pSPORT1 (Life Technologies); Site_1: Not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       168 ATGGCCTCAACCACTGTCAAACCAAAAGCCTCGTATACAGCAGGCTGCACGAAAGCA 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     447 GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Email: estewatson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further informa
call: (800)-533-433 or contact via email: ccueresgen.com
Insert Length: 329 Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /tissue_type="immature seed coats of greenhouse grown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        387 IICIGAAIGACAICAGGGAICCCGCCCGICICACIGGCGAIAACGGGCACGCCGGAGACI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Washington University School of Medicine
4444 Forest Park Parkway, Box 8501; St. Louis, MO 63108,
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:3847"
/clone="GENOME SYSTEMS CLONE ID: Gm-c1019-4940"
/clone_lib="Gm-c1019"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 523;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 34.8; DB Pred. No. 91; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Glycine max"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  High quality sequence stop: 433.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Seg primer: -40RP from Gibco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                              139 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AW279073.1 GI:6667622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sg07d10.y1 Gm-c1019
Gm-c1019-4940 5' sim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 527)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity .... hes 66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              plants"
```

```
Glycine.

(Glycine.)

(Glycine.)

(Glycine.)

(Glycine.)

(Shoemaker,R., Kefin,P., Vodkin,L., Erpelding,J., Coryell,V., Khanna,A., Bolla,B., Marra,M., Hiller,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B., Swaller,T., Glbbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., R., Materston,R. and Wilson,R.

Unpublished (1999)

Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine

4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA

Tel: 314 286 1810
                                                 greenhouse grown plants. The library was prepared using greenhouse grown plants. The library was prepared using the Life Technologies pSuperScript CDNA library construction kit. Complementary DNA was synthesized from mRNA using a poly (dT) sequence with a Not I restriction site. Sal I linker adapters were ligated to the blunt-ended cDNA fragments were ligated to the time. The CDNA fragments were directionally cloned into the Not I -Sal I restriction site of the pSPORTI vector. The ligated CDNA fragments were transformed into E. coli ElectroWax DH10B host cells (Gibco BRL). This library was constructed by Dr. Lila Vodkin and Dr. Anu Khanna."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fax: 314 286 1810
Email: est@watson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-4363 or contact via email: ccu@resgen.com
High quality sequence stop: 420.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papillonoideae; Phaseoleae;
   constructed from mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EST 29-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                387 ITCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note-"Vector: pBluescript II SK+; Site_1: EcoRI; Site_2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            220 TGCACAATGATCTCAGCAGGACCACCATTGCATGTGGGGAATGTTGGCAAGCCGCAAGTC 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BM092322 59-NOV-20 sahllel0.yl Gm-c1086 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-c1086-1004 5' similar to SW:SUSY_SOYBN P13708 SUCROSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       447 GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         160 ATGGCCTCAACCACTGTCAAAAGCCTCGTATACAGCAGGCTGCACGAAGCAC 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
Site_2: Sal I; This cDNA library was constructed isolated from immature seed coats (200-300 mgs)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone="GENOME SYSTEMS CLONE ID: Gm-c1086-1004" /clone_11b="Gm-c1086"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 10; Length 527;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tissue_type="young seeds (Williams 82)"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 34.8;
Pred. No. 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism-"Glycine max"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref-"taxon:3847"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SYNTHASE ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BM092322
BM092322.1 GI:17021288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BM092322/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
```

셤 ð 셤

ð.

```
xhoI; The cDNA library was constructed from mRNA isolated from very young seeds (less than 20mgs). The library was prepared using the Stratagene .pBluescript II SK (+) library construction kit. Complementary DNA was synthesized from mRNA using a primer consisting of a poly(dT) sequence with an Xho I restriction site. Eco RI adaptors were ligated to the blunt-ended cDNA fragments followed by Xho I digestion. The cDNA insert is protected from Xho I digestion via methylation during first strand cDNA sythesis. The cDNA fragments were directionally cloned into the Eco RI-Xho Irrestriction site of the pBluescript vector. The ligated cDNA fragments were transformed into E.coli ElectroMax DH10B host cell. The library was constructed by Anu Khanna (Lila VodKin lab, University of Illinois)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This clone is available through: ResGen, Invitrogen Corp. 2130 South Memorial Parkway Huntsville, AL 35801 For further information call: (800)-533-4363 or contact via email: ccu@resgen.com High quality sequence stop: 421.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              lighter. 1 to 543.

I (bases I to 542).

I (bases I to 542).

Shoemaker.R., Kelim.P., Vodkin,L., Erpelding,J., Coryell,V., Khanna, A., Bolla,B., Marra,M., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylle,T., Underwood,K., Steptco.M., Theising,B., Allen,M., Bowers, Y., Person,B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Materston,R. and Wilson,R.

Unpublic Soybean EST Project

Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear EST 29-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       387 TTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Glycine max"
/db_xref="taxon:3847"
/db_xref="taxon:3847"
/clone="GENOME SYSTEMS CLONE ID: Gm-c1049-4322"
/clone_lib="Gm-c1049"
/tissue_lib="whole seedlings of greenhouse grown plants"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           142 TGCACAATGATCTCAGCAGGACCACCATTGCATGTGGCGAATGTTGGCAAGCCGCAAGTC 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sah77c01.y1 Gm-c1049 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-c1049-4322 5' similar to SW:SUSY_SOYBN P13708 SUCROSE SYSTHARS; , mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               447 GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Showmaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine
444 Forest Park Parkway, Box 8501, St. Louis, MO 63108,
Tel: 314 286 1810
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 540;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 34.8; 1
Pred. No. 91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BI427174.1 GI:15204406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BI427174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query ...
Best Local Simira
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 47
BI427174/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
```

```
Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Glycine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 49
BQ630772/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Shoemaker, N. Kelm, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylle, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R. and Wilson, R.

Unpublic Soybean EST Project
Unpublished (1999)
Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1800
                                  /note="Nector: pBluescript II SK+; Site 1: ECORI; Site_2:
XhOI; The Clark NIL was constructed and seed was provided
by Dr. J. Specht, University of Nebraska (Shoemaker and
Specht, 1995). The CDNA library was constructed from mRNA
isolated from whole seedlings of 3 week old greenhouse
grown plants. Complementary DNA was synthesized from mRNA
using a primer consisting of a poly(dT) sequence with a
XhOI restriction site and a 3' anchor. EcoRI adapters were
ligated to the blunt-ended cDNA fragments followed by XhOI
digestion. The cDNA fragments were directionally cloned
into the EcoRI-XhOI restriction site of the pBluescript
vector. The ligated cDNA fragments were transformed into
DH10B host cells (GibcoBRL). The library was constructed
in cooperation with Dr. Paul Keim's laboratory at Northern
Arizon University."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sag10d03.yl Gm-c1080 Glycine max cDNA clone GENOME SYSTEMS CLONE
ID: Gm-c1080-558 5' similar to SW:SUSY_SOYBN P13708 SUCROSE
BI427022
BI427022.1 GI:15204254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: est@watson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-4363 or contact via email: ccueresgen.com
High quality sequence stop: 391.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Glýcine max
kukaryota (viidiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                387 TTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                137 TGCACAATGATCTCAGCAGGACCACCATTGCATGTGGGGAATGTTGGCAAGCCGCAAGTC 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   447 GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Glycine max"
/db_xref="taxon:3847"
/clone="GENOME SYSTEMS CLONE ID: Gm-c1080-558"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 34.8; DE
Pred. No. 91;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                    157 t
/dev_stage="3 wee
/lab_host="DH10B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.9%;
55.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 566)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.99
Best Local Similarity 55.99
Matches 66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Glycine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 48
BI427022/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
```

g ò g

à

```
/lab_nost="NetLourner in the control of the corresponding the mana was isolated from roots of 8 day old "Abol; The mana was isolated from roots of 8 day old "Abol; The mana was isolated from roots of 8 day old "Bragor supernodulating mutant Wrs38 seedlings that were infected with Bradyhizobium japonicum, strain USDA hio, 72 hours prior to harvest. Dr. Gary Stacey generously donated the tissue. The roots were flash frozen in liquid nitrogen. Stratagene's cDNA Synthesis Kit (catalog number 200401) was used to synthesize the CDNA. First-strand synthesis was performed with 5-methyl dCTP, hence the ligated cDNA was performed with 5-methyl dCTP, hence the ligated cDNA was performed with 5-methyl dCTP, hence the ligated cDNA was performed with 5-methyl dCTP, hence the ligated cDNA was performed synthesis primer was used. An "anchor uncloadide ("A-A, C, or G) was added to the 3' end of the primer at the 5' end of the poly(A) tract. After second-strand synthesis, the cDNA ends were filled in with cloned Piu DNA, ligated to EcoRI adapters and subsequently phosphorylated. The cDNA was then precipitated and redissolved in sterile, RMsse., DNAsse-free water. The XhoI site within the first-strand synthesis primer was then restricted by digestion with xhoI from Promega (40U/u); all XhoI sites in the cDNA would be protected by their hemimethylated status. The cDNA constructs were size-fractionated with a 500bp cutoff, using Sephacryl S-500 High Resolution (Pharmacia Biotech) in a 2-mm diameter column ender was precipitated, redispanced and ligated into Stratagene's palescript in the produced was indiameter was precipitated.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 581)
Shoemaker,R., Keim,P., Vodkin,L., Erpelding,J., Coryell,V., Khanna,A., Bolla,B., Marra,M., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    XR Predigested vector (pBluescript II SK(+) vector that has been digested with EcoRI and XhoI, and phosphorylated by Stratagene). This library was constucted in the laboratory of Dr. Paul Keim and Dr. Virginia H. Coryell at Northern Arizona University."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EST 02-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               387 TTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               283 TGCACAATGATCTCAGCAGGACCACCATTGCATGTGGCGAATGTTGGCAAGCCGCAAGTC 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BQ630772 581 bp mRNA linear EST 02-JUL-200 sap31a10.y1 Gm-c1082 Glycine max cDNA clone SOYBEAN CLONE ID: Gm-c1082-3884 5' similar to SW:SUSY_SOYBN P13708 SUCROSE SYNTHASE
             day old 'Bragg' supernodulating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123 ATGGCCTCAACCACTGTCAAACCAAAAGCCTCGTATACAGCAGGCTGCACGAAAGCA 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    447 GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 566;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.9%; Score 34.8; D
55.9%; Pred. No. 92;
iive 0; Mismatches
/tissue_type="Roots of 8
mutant NTS382 seedlings"
/dev_stage="8 days old"
/lab_host="DH108"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BQ630772
BQ630772.1 GI:21678421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;, mRNA sequence.
BQ630772
```

```
/note="Vector: pBluescript II SK+: Site_I: ECORI; Site_2:
XhoI; The mRNA was isolated from roots of bulked Minsoy x
Noir RI progeny that are phenotypically susceptible to
flooding damage. The plants were flooded (submerged) for
24 hours prior to harvest. Dr. Tara VanTodi generously
provided the isolated mRNA. The roots were flash- frozen
in liquid nitrogen. Stratagene's cDNA Synthesize the cDNA.
First-strand synthesis was performed with 5-methyl dCTP,
hence the ligated cDNA was nemimethylated. A modification
of Stratagene's first-strand synthesis primer was used. An
anchor' nucleotide (V=A, C, or G) was added to the 3' end
of the primer at the 5' end of the poly(A) tract.
After second-strand synthesis, the cDNA ends were filled
in with cloned Pfu DNA, ligated to ECORI adapters and
subsequently phosphorylated. The cDNA was then
precipitated and redissolved in sterile, RNase.,
DNase-free water. The XhoI site within the first- strand
synthesis primer was then restricted by digestion with
XhoI from Promega (400/ul); all XhoI sites in the cDNA
would be protected by their hemimethylated status. The
cDNA constructs were size-fractionated with a 500bp cutoff
' using Sephacryl scolumn and a bed volume of
' in a 2-m diameter column and a bed volume of
                                                                                                                                                                                                                                                                                                           Email: est@watson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-4363 or contact: ccu@resgen.com web site:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     by Stratagene). This library was constucted in the laboratory of Dr. Paul Kelm and Dr. Virginia H. Coryell at Northern Arizona University."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      approximately Iml. The column eluent was precipitated, redissolved, and ligated into Stratagene's pBluescript II XR Predigested vector (pBluescript II SK(+) vector that
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  XR Predigested vector (pBluescript II SK(+) vector that has been digested with EcoRI and XhoI, and phosphorylated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       387 TTCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ,R., Ritter,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R. and Wilson,R.
Public Soybean EST Project
Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   447 GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACAC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /tissue_type="Roots of bulked Minsoy x Noir RI progeny"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                            Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University Stopeol of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 14; Length 581;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .581
/organism="Glycine max"
/organism="Glycine max"
/clone="SOYBEAN CLONE ID: Gm-c1082-3884"
/clone_lib="Gm-c1082"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 92:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.9%; Score 34.8;
55.9%; Pred. No. 92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Seq primer: -40RP from Gibco
High quality sequence stop: 426.
Location/Qualifiers
                                                                                                                                                                                                                                                        314 286 1800
314 286 1810 '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                          www.resgen.com
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        128
                                                                                                                                                                                                                                                        Tel:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
```

```
/note="Vector: pBluescript II SK+; Site_I: ECORI; Site_2:
XhOI; The mRNA was isolated from roots of bulked Minsoy x
NoIf RI progeny that are phenotypically susceptible to
flooding damage. The plants were flooded (submerged) for
24 hours prior to harvest. Dr. Tara Vanfoal generously
provided the isolated mRNA. The roots were flash-frozen
in liquid nitrogen. Stratagene's cDNA Synthesize the cDNA.
First-strand synthesis was used to synthesize the cDNA.
First-strand synthesis was berformed with 5-methyl dCTP,
hence the ligated cDNA was hemimethylated. A modification
of Stratagene's first-strand synthesis primer was used. An
anchor' nucleotide (V=A, C, or G) was added to the 3' end
of the primer at the 5' end of the poly(A) tract.
After second-strand synthesis, the cDNA ends were filled
in with cloned Pfu DNA, ligated to ECONI adapters and
subsequently phosphorylated. The cDNA was then
precipitated and redissolved in sterile, RNase.,
DNasse-free water. The XhOI site within the first- strand
synthesis primer was then restricted by digestion with
XhOI from Promega (400/ul); all XhOI sites in the cDNA
would be protected by their hemimethylated status. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This clone is available through: Resgen, Invitrogen Corp. 2130
South Memorial Parkway Huntsville, AL 35801 For further information
call: (800)-533-4363 or contact via email: ccu@resgen.com
Seq primer: -40RP from Gibco
                                                                        BI787127 584 bp mRNA linear EST 29-NOV-2001 sag71f10.yl Gm-c1082 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-c1082-2179 5' similar to SW:SUSY_SOYBN P13708 SUCROSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Shoemaker, R., Kell, P., Vodkin, L., Erpelding, J., Coryell, V., Khanna, A., Bolla, B., Marra, M., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wyller, T., Underwood, K., Stephce, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, M., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R. and Wilson, R.
Public Soybean EST Project
Contact: Shoemaker R/Public Soybean EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cDNA constructs were size-fractionated with a 500bp cutoff , using Sephacryl S-500 High Resolution (Pharmacia Biotech ) in a 2-mm diameter column and a bed volume of
                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota: Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               approximately Iml. The column eluent was precipitated, redissolved, and ligated into Stratagene's paluescript II XR Predigested vector (pBluescript II SK(+) vector that has been digested with EcoRI and XhoI, and phosphorylated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tissue_type="Roots of bulked Minsoy x Noir RI progeny"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Shoemaker R/Public Soybean EST Project
Public Soybean EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Fel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. .584
/organism="Glycine max"
/db_xref="taxon:3847"
/clone="GENOME SYSTEMS CLONE ID: Gm-cl082-2179"
/clone_lib="Gm-cl082"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    High quality sequence stop: 413.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: est@watson.wustl.edu
                                                                                                                                                                                       SYNTHASE ;, mRNA sequence.
                                                                                                                                                                                                                                                            BI787127.1 GI:15814852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 584)
                                                                                                                                                                                                                                                                                                                                                                       Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Glycine.
                                                                                                                                                                                                                                                                                                                                    soybean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
RESULT 50
BI787127/c
LOCUS
                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                     ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                              KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
```

us-09-674-277-2.rst

```
by Stratagene). This library was constucted in the laboratory of Dr. Paul Keim and Dr. Virginia H. Coryell at Northern Arizona University."

BASE COUNT 135 a 141 c 162 g 146 t CORYELLA CORYELA
```

Search completed: June 19, 2003, 03:33:54 Job time: 1261.12 secs

Appli Appli Appli Appli Appli Appli

ĕ

```
ce 8, Appl
10. 5405943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 3, Appli
Patent No. 5326859
Patent No. 5514567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      362, Ar
< Appli
Apr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                162, App
3, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5, Appli
5514567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1,42,4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1, 1
33,
                                                                                                                                                                                                19,000,000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1,5
   sequence 1
Sequence 2
Sequence 3
Sequence 3
Sequence 4
Sequence 4
Sequence 5
Sequence 5
Sequence 5
Sequence 5
Sequence 1
Sequence 2
Sequence 2
Sequence 2
Sequence 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sednence Sed
US-08-765-907A-4
US-09-765-907A-1
US-09-041-886-24
PCT-US94-05277-1
US-09-482-180A-3
US-08-832-883-48
US-08-832-883-48
US-08-832-883-48
US-08-832-877-48
US-08-832-877-48
US-08-832-877-48
US-09-293-505-8
5405343-1
US-08-858-207A-78
US-08-858-207A-78
US-08-858-207A-78
US-08-858-207A-78
US-08-919-953-5
US-08-919-953-5
US-08-919-953-5
US-08-919-953-13
US-08-919-953-5
US-08-919-953-6
US-08-919-953-6
US-08-919-953-6
US-08-919-953-6
US-08-919-953-6
US-08-919-953-6
US-08-911-027-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-532-384-21
US-08-147-777-1
US-08-452-872-1
                                                                                                                                                                                                                                                                                                                                                              621
1002
11002
11544
2940
4608
4608
4700
622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6701
9723
9723
10747
                                                                                                                                                                                                                                   000000000
 συσ
                                                                                                                                                             υυ
                                                                                                                                                                                                                                                                                                                                                              0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2, Appli
1, Appli
5405943
1, Appli
7, Appli
2, Appli
2, Appli
1, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Appli
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Appli
Appli
Appli
Appli
Appli
Appli
                                                                                                                      ; Search time 46.8861 Seconds (without alignments) 7724.783 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  App
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1. No. is the number of results predicted by chance to have a re greater than or equal to the score of the result being printed, is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Patent No. Sequence 2 Sequence 2 Sequence 2 Sequence 2 Sequence 1 Sequence 1 Sequence 1 Sequence 2 Sequence 3 Sequence 1 Sequence 1 Sequence 2 Sequence 5 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                ctgcaggagatggaaaaaa......ttttactttttctctgcag
                                                                                                                                                                                                                                                                                                                                                          882724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /cgn2_6/ptodata/1/ina/5A_COMB.seq:*
/cgn2_6/ptodata/1/ina/5B_COMB.seq:*
/cgn2_6/ptodata/1/ina/6A_COMB.seq:*
/cgn2_6/ptodata/1/ina/6B_COMB.seq:*
/cgn2_6/ptodata/1/ina/PcTUS_COMB.seq:*
/cgn2_6/ptodata/1/ina/PcTUS_COMB.seq:*
                GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 US-09-103-840A-2

1 US-09-103-840A-1

1 US-09-103-840A-1

1 US-09-103-840A-1

5405943-3

1 US-09-103-6-046-1

US-09-066-046-7

US-09-104-000-2

US-09-104-000-2

US-09-104-000-2

US-09-104-000-2

US-08-232-463-14

US-08-232-463-14

US-09-370-700-1

US-08-961-527-155

US-08-961-527-155

US-08-961-527-155

US-09-050-855-050

US-08-961-527-155

US-08-961-527-155

US-09-650-855-050
                                                                                                                                                                                                                                                                                                                                                      hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                       441362 seqs, 153338381 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 150 summaries
                                                                                       nucleic search, using sw model
                                                                                                                          02:08:24
                                                                                                                                                                                                                                                                 IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Issued_Patents_NA:*
                                                                                                                                                                                                                                                                                                                                                                                         length: 0
length: 2000000000
                                                                                                                                                                                            US-09-674-277-2
1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length DB
                                                                                                                          June 18, 2003,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4403765
4411529
4403765.
4411529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query
Match
                                                                                                                                                                                                                                                                                                                                                          oŧ
                                                                                                                                                                                                                                                                                                                                                                                           sed
                                                                                                                                                                                                                   score:
                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ٠
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        57.
39.
39.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32.
332.
331.
331.
330.
330.
                                                                                                                                                                                                                                                                                                                                                          Potal number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 score
and is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred.
                                                                                       nucleic
                                                                                                                                                                                                                                                                                                                                                                                           8 B
                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                              Title:
Perfect s
                                                                                                                                                                                                                                                                                                                                                                                           Minimum I
Maximum I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database
                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ٠
يو
                                                                                                                          Run
```

Appli , Appl

Appli Appli Appli Appli

0000

00000

000

```
IYPE: DNA
ORGANISM: Mycobacterium tuberculosis
                                                     Best_Local Similarity
                                                           Matches 116;
                                                                                                                                                                              RESULT 2
US-09-103-840A-1
                                                                                                                                                                                                                                                                                                                                                                                                  392
                                                                                                                                                                                                                                                                                                                                                                                                                          452
                                                                                                                                                452
                                                                                                                                                                                                                                                                                          TYPE: DNA
                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                        392
                                                Query Match
                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                   a
                                                                                                                                   셤
                                                                                                ö
                                                                                                            셤
                                                                                                                         ð
                                                                                                                                                à
                                                                        å
                                                                                            Sequence 1, Appl. Sequence 32, Appl. Sequence 5, Appl. Sequence 5, Appl. Sequence 100, Appl.
                                                                                                                                                                                                                                                                                                                                                   ; Sequence 2. Application US/09103840A; Sequence 2. Application US/09103840A; Patent No. 629432B; Sequence 2. Applicant No. 629432B; Sensal INFORMATION: APPLICANT: FLEISCHMAN, Robert D.; APPLICANT: WHITE, Owen R.; APPLICANT: VENTER, John C.; TILLE OF INVENTION: TUBERCULOSIS; FILE REFERENCE: 24366-20007.00; CURRENT APPLICANT: 1998-06-24; NUMBER OF SEQ ID NOS: 2. NUMBER OF SEQ ID NOS: 2. SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                       Appli
Appli
                                                                                                                                                                                App11
                                                                                                                                                                                             Appli
Appli
                                                                                                                                                                                                                                                        Appl
Appli
Appli
                                                                                                                                     Appl
                                                                                                                                                              Sequence 927,
Sequence 17,
Sequence 1, A
                                                                                                                                                                                                                                            Sequence 4.
                                                                                                                         Sequence 1
Sequence 2
Sequence 1
                                                                                                                                           Sequence 1
Sequence 8
Sequence 2
                                                                                                                                                                               Sequence 2
Sequence 2
Sequence 2
                                                                                                                                                                                                 Sequence Sequence Sequence
                                                                                                                                                                                                                   Sequence 1
Sequence 1
Sequence 1
                                                                                                                                                                                                                                                       Sequence 4
                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                           Sequence
Sequence
Sequence
                                                             Sequence
Sequence
Sequence
                                                                              Sequence
Sequence
Sequence
                  Sequence
                                    Sequence
                                                                                                                                                                                                                                      Sequence
     Sequence
                                                Sequence
                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                       -09-134-001C-2575
-09-221-017B-927
                                               -0893-03985-3
                                          JS-08-247-901C-1
                                                                                                                                                                                                                                                                                                        PCT-US92-03222-
                                                                                                                                                                                                                                                                                                                          ALIGNMENTS
             15062
15202
24979
24979
24979
50341
50341
52297
215
                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 4403765
                                                                                                                                                                                                                                                                                                                                                   US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO
                                                                                                                                                                                                                                                                                                                                              RESULT 1
 0000
                                                                                                                                                                                  0000
  00000000000000
                                                                                            000000
```

```
2450192 CACCGTTTCCGGCGCGCCCCGCCGGAATTGCCGGCATACCGGCACGCCGGCGGGGGGC 2450251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2450132 GEGETCGGCCACCGGTCCACCGACCTACCGTCGACCACTAGCCCAGTCTTGTGTGCTG 2450191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2450072 TICTCGGCCGCCGGCCCCATCGCGACCCCGATCGCATCGATCAGCAACTCGGCCAC 2450131
                                                                                                                                                                                                                                                                                2447373 ITCICGGCCGCCGGCCCCATCGCGACGCCCGATCCCATCGATCAGCAACTCGGCCAC 2447432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       272 ITCICIGGCGCTGCCTCCTCTCCGGAAGCGITCCGGTCGGGATAAAAAATCGCGCAG 331
                                                                                                                                                                                                                                                                                                                                             332 IGCGCCGGTCCAIGCAGACACATCCCCCACGGGIAACAGCGTCCCTGTCACATICTTCIG 391
                       positions throughout the sequence g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         332 TGGGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTG
                                                                                                                                                                                                                                                                                                                                                                                            2447433 GGCGTCGGCCACCCGGTCCACCGTCGTCGACCACTAGCCCAGTCTTGTTGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGC
                                                                                                                                                                                                                                             272 TTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: WHITE, Owen R.
APPLICANT: WHITE, Owen R.
APPLICANT: FRASER, Claire M.
APPLICANT: FYBER, Claire M.
APPLICANT: FYBER, Claire M.
TITLE OF INVENTION: TUBERCULOSIS
FILE REFERENCE: 24366-20007.00
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
SOFTWARE: Patentin Ver. 2.1
LENGTH: 4411529
                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4.8%; Score 57.2; DB 4; Length 4411529;
54.2%; Pred. No. 1.1e-06;
iive 0; Mismatches 98; Indels 0;
                                                                                                                                            Length 4403765;
                                                                                                                                                                                                 ö
                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2450252 ITCGAGGAACACGAIGCCCAAGCCCTCGACGICC 2450285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 57.2; DB 4;
Pred. No. 1.1e-06;
0; Mismatches 98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTCAGCCAGTACCATACCAAACGCTTCATTTTCC 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTCAGCCAGTACCATACCAAACGCTTCATTTTCC 485
FEATURE:
COTHER INFORMATION: CDC 1551
COTHER INFORMATION: "n" bases at various
COTHER INFORMATION: represent a, t, c or
US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ) ORGANISM: Mycobacterium tuberculosis
) OTHER INFORMATION: H37RV
US-09-103-840A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1, Application US/09103840A Patent No. 6294328 GENERAL INFORMATION:
APPLICANT: FLEISCHMAN, Robert D.
                                                                                                                                              4.8%;
illarity 54.2%;
Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 54.2
Matches 116; Conservative
```

```
ADDRESSEE: HALE AND DORR LLP
STREET: 60 State Street
CITY: Boston
STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1, Application US/09066046A Patent No. 6204252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STOREY, James
BELTZ, Gerald A.
COUGHLIN, Richard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 271,653
FILING DATE: 16-NOV-1988
APPLICATION NUMBER: 410,831
FILING DATE: 22-SEP-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: MURPHY, Cheryl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1133 ATGCCCTCTTTT 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES: 65
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 2.9
Best Local Similarity 53.4
Matches 71; Conservative
                                                                                                                                                                                                                                                                      576367 CGAAACA 576361
                                                                                                                                                                                                                                  513 CGGTAGA 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 6
US-09-066-046-1/c
  333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO:3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5405943-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                ρ
                                                                                                            셤
                                                                                                                                                      à
                                                                                                                                                                                        셤
                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       577869 TCCACAGCAACCAGGCCGAACGACTCGGAGTAGCTCGGCACCGCAACCAGGTCCGCGGC 577810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               333 GCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGA 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     453 TCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACCACTGGCAATC 512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Squence 1. Application US/09103840A

Squence 1. Application US/09103840A

GENERAL INFORMATION:
APPLICANT: FLEISCHMAN, Robert D.
APPLICANT: FRASER, Claire M.
APPLICANT: FRASER, Claire M.
APPLICANT: VENTER, John C.
TITLE OF INVENTION: TUBERCULOSIS
FILE REFRENCE: 24366-2007.00
CURRENT APPLICATION NUMBER: US/09/103,840A
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 1
LENGTH: 4411529
                                                GENERAL INFORMATION:
APPLICANT: FLEISCHMAN, Robert D.
APPLICANT: FLEISCHMAN, Robert D.
APPLICANT: FLEISCHMAN, Robert D.
APPLICANT: FRASER, Claire M.
APPLICANT: PRASER, Claire M.
APPLICANT: PRASER, Claire M.
TITLE OF INVENTION: TOBERCULOSIS
FILE REFERENCE: 24366-20007.00
CURRENT APPLICATION NUMBER: US/09/103,840A
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
SOFTWARE: PATENTIN VET. 2.1
SEQ ID NO 2
LENGTH: 4403765
                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION: CDC 1551

OTHER INFORMATION: "n" bases at various positions throughout the sequence
CTHER INFORMATION: represent a, t, c or g
US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           393 ATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.4%; Score 39.8; DB 4; Length 4403765; llarity 50.8%; Pred. No. 0.65; Conservative 0; Mismatches 92; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 39.8; DB 4; Length 4411529;
Pred. No. 0.65;
0; Mismatches 92; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       92; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TYPE: DNA
; ORGANISM: Mycobacterium tuberculosis
; CTHER INFORMATION: H37Rv
US-09-103-840A-1
                                                                                                                                                                                                                                                                                                                            TYPE: DNA ORGANISM: Mycobacterium tuberculosis
                Sequence 2, Application US/09103840A Patent No. 6294328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 3.4%;
Best Local Similarity 50.8%;
Matches 95; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         || | | |
577809 CGAAACA 577803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 95; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 513 CGGTAGA 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-103-840A-1/c
US-09-103-840A-2/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
```

```
1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1073 TCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATC 1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
GCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGA 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               285 CTTAAACCAGAGTICATAAGCTIGATGAGTTATGATAAAAAGGATGTICATGATTTT 226
                                                                                       393 ATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCT
                                                                                                                                   453 TCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       345 ATCTCTGACATGGCCATTCTGAAAGATCTCTCGAACAGAATCCAAACTCCCAGAGGATTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1013 ATTACTGTCATGGCCACTATGGCAGATGACCAGGTTTAAATTCCCCGGATAATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1647;
                                                                                                                                                                                                                                                                                                                                                                                                                 5405943-3/c;Patent No. 5405943;APELICANT: COMINGS, DAVID E. TITLE OF INVENTION: TOURETTE SYNDROM, AUTISM AND ASSOCIATED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: CHARACTERIZATION OF GRANULOCYTIC EHRLICHIA AND METHODS OF USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 33.8; DB
Pred. No. 0.63;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BEHAVIORS

NUMBER OF SEQUENCES: 5

CURRENT APPLICATION DATA:

PILING DATE: 03-AUG-1990

PRIOR APPLICATION DATE: 03-AUG-1990

PRIOR APPLICATION DATE: 125-577

FILING DATE: 25-NOV-1987
```

```
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        , ORGANISM: Human
US-09-141-000-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-141-000-2
                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-066-046-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1133 TITGAGGCICTGTIGCIATAGGGGCAGTAGACATAAGTACAGAIGGTIGCACTICCACIG 1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1193 GCACAATAATGGATGATTCTACTTGTACTGCAGTAGTGTTTACTTGGTTAACAACGGCAT 1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    397 CATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            457 CCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   517 AGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCCAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 33; DB 4; Length 3147;
Pred. No. 1.7;
0; Mismatches 100; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BELTZ, Gerald A.
COUGHLIN, Richard T.
TITLE OF INVENTION: CHARACTERIZATION OF GRANULOCYTIC
                                                 COMPUTATION TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERALING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHRLICHIA AND METHODS OF USE
                                                                                                                                                                                                    ATTORNEY AGENT INFORMATION:

NAME: SUPERCO, COlleen
REGISTRATION NUMBER: 39,850
REFERENCE, POCKET NUMBER: 106.941.155
TELECOMMUNICATION INFORMATION:

TELEPHONE: (617) 526-6000
TELEPHONE: (617) 526-5000
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                           APPLICATION NUMBER: US/09/066,046A FILING DATE: 24-Apr-1998 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ANTI-SENSE: NO
SEQUENCE DESCRIPTION: SEQ ID NO: 1:
US-09-066-046-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
ADDRESSEE: HALE AND DORR LLP
STREET: 60 State Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY: United States
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 7, Application US/09066046A
Patent No. 6204523
GENERAL INFORMATION:
APPLICANT: MURPHY, Cheryl
                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 3147 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
COUNTRY: United States
                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.8%;
Local Similarity 48.2%;
hes 93; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1073 ATTCTTGTTGCTG 1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GITCIGICIGCIG 589
                                     COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STOREY,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-066-046-7/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

```
733 GCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGTAACGGTCGCATGG 792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         457 CCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGT 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24 SSGIDALSHHSPSGSSDASGGFGLALGTHANGLDSPPMFAGAGLGGTPCRKSYEDCASGI 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1007 CAACAGITATCGICICAGIAGIATCIICGAGCACGGIAACGICAGIGIGIIGCGAITCIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              397 CATCAGGGATCCCGCCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGTTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     947 GCACAATAATGGATGATTCTACTTGTACTGCAGTAGTGTTTACTTGGTTAACAACGGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            517 AGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACACATCTCCGCTCATTCCCAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 500;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4; Length 5570;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 33; DB 4; Length 557;
Pred. No. 2.3;
0; Mismatches 100; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Chen, Fang MOLECULES ENCODING HUMAN NUCLEAR TITLE OF INVENTION: DNA MOLECULES ENCODING HUMAN TITLE OF INVENTION: RECEPTOR PROTEINS FILE REFERENCE: 19999Y CURRENT APPLICATION NUMBER: US/09/141,000
PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ch 2.8%; Score 32.6; DB 3;
1 Similarity 10.8%; Pred. No. 0.78;
43; Conservative 110; Mismatches 246;
                                                                                                                       ATTORNEY AGENT INFORMATION:

NAME: SUPERKO, COLLEEN
REGISTRATION NUMBER: 39,850
REFERENCE/DOCKET NUMBER: 106.941.155
TELECOMMUNICATION INFORMATION:
TELEPRAK: (617) 526-6000
TELEFAX: (617) 526-5000
INFORMATION FOR SEQ.ID NO: 7:
SEQUENCE CHARACTERISTICS:
                         CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/066,046A
FILING DATE: 24-Apr-1998
CLASSIFICATION: CURKNOWN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT FILING DATE: 1998-08-26
NUMBER OF SEQ ID NOS: 30
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ANTI-SENSE: NO
SEQUENCE DESCRIPTION: SEQ ID NO: 7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 2, Application US/09141000 Patent No. 6054295
                                                                                                                                                                                                                                                                                                                                                         LENGIH: 5570 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.8%;
                                                                                                                                                                                                                                                                                                                                                                              nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           827 ATTCTTGTTGCTG 815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            577 GTTCTGTCTGCTG 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 2.8 Best Local Similarity 48.2 Matches 93; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 43; Conserva
```

```
973 TGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTGTCATGGCCACTAT 1032
                                                                                                                                                                                                                                                                                                                                   1033 GGCAGAIGACCAGAICAGGITIAAAITCCCCGAIAATCCGTCGAAGICIGAGGAIGGAAG 1092
                        913 GATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTTTGTCTGACAATAG 972
                                                                                                                                                                                            |: | :: | :: | :: |
204 PARKPLTKIVSYLLVAEPDKLYAMPPPGMPEGDIKALTTLCDLADRELVVIIGWAKHIPG 263
                                                                                                                                                                                                                                                                             793 CTTCATTATGCAATGCGGGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGA 852
                                                                                353 CACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACACA 912
                                                                                                                                                                                                                                                                                                                                                                           324 ILQLVRRYKKLKVEKEEFVTLKALALANSDSMYIEDLEAVQKLQDLLHEALQDYELSQRH 383
                                                                                                                                                                                                                                                                                                                                                                                                                       1093 GAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACAT 1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                384 EEPWRTGKLLITLPLLRQTAAKAVOHFYSVKLQGKVPMH 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Tom
APPLICANT: Toning, Y. Tom
APPLICANT: Corley, Neil C.
APPLICANT: Guegler, Karl J.
TITLE OF INVENTION: HUMAN SMN-LIKE PROTEIN
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
ADDRESSEE: Incyte Pharmaccuticals, Inc.
STREET: 3174 Porter Dr.
CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
OPERATING SYSTEM: DOS
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/028,327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF-0482 US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 2, Application US/09028327
Patent No. 6130064
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Billings, Lucy J
REGISTRATION NUMBER: 36,749
REFERENCE/DOCKET NUMBER: PF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
LENGTH: 2426 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEPHONE: 650-855-05
TELEFAX: 650-845-4166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; LIBRARY: BRSTNOT24
; CLONE: 3769729
US-09-028-327-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-028-327-2/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 9
                                                                                                                 셤
                                                                                                                                                                 ð
                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                              ò
```

```
859
                                                                                           860 CGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAAT 918
                                                                                                                                                              800 ATGCAATGCGGGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTTC
                                         Gaps
                                     ö
     Length 2426;
                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 : Misra, Vikram
: Nelson, Randy
: Smith, Michael
: Sequence of a Bovine Herpesvirus Type-1 etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette - 3.50 inch, 800Kb storage COMPUTER: Apple Macintosh OPERATING SYSTEM: Macintosh SOFTWARE: Microsoft Word 4.0 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/035,558
                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: HERBESVIRUS VACCINE AND METHOD TITLE OF INVENTION: OF USING SAME NUMBER OF SEQUENCES: 3 CORRESPONDENCE ADDRESS:
                                     54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: coding sequence for gI glycoprotein LOCATION: 379 to 3165
IDENTIFICATION METHOD: sequence analysis
     DB 3;
%; Score 32.6; DI
%; Pred. No. 2;
. 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9629691682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 07/607,794
FILING DATE: 02-NOV-1990
ATTORNEY/AGENT INFORMATION:
NAME: NICHOLAS J. SEAY
REGISTRATION NUMBER: 27,386
REFERENCE/DOCKET NUMBER: 96296910
TELEPHONE: (608)251-9166
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                       APPLICANT: Letchworth, Geoffrey J. APPLICANT: Israel, Barbara A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: bovine herpervirus-1 INDIVIDUAL ISOLATE: P8-2 strain
                                                                                                                                                                                                                                                               Sequence 1, Application US/08035558
Patent No. 5462734
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET: P.O BOX 2113
STREET: FIRST WISCONSIN PLAZA
CITY: MADISON
STATE: WISCONSIN
                                                                                                                                                                                                                                                                                                                                                                                                                                     Quarles and Brady
2.8%;
Similarity 54.6%;
55; Conservative .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: genomic DNA HYPOTHETICAL: no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 3519 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PUBLICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Virology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGINAL SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            53701
                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                US-08-035-558-1/c
Query Match
Best Local Simi
Matches 65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL:
VOLUME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS:
                                                                                                                                          οy
                                                                                                      Ωp
                                                                                                                                                                           q
```

```
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
22;
 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                   윱
                                                              셤
                                                                                                                            a
                                                                                                                                                           ð
                                                                                                                                                                                                                           à
                                                                                                à
                                                                                                                                             296 CCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATC 355
                                                                                                                                                                             196 cceneccecececesargesaacaaaaaacrecresaagrescrracescececece 137
                                                                                                                                                                                                              Gaps
                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 7218;
                                                                               Score 32.2; DB 1; Length 3519;
Pred. No. 3.3;
0; Mismatches 84; Indels 0
                                                                                                                                                                                                                                                                          416 CTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGT 461
                                                                                                                                                                                                                                                                                                     76 GITITCCACGCIAAAGIACAGCGCGGGGTGITTGGCGCTGCGCGAAGT 31
                                 1: FROM 379 TO 3165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                     Sequence 14, Application US/08232463
Patent No. 5670367
GENERAL INFORMATION:
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE/DOCKET NUMBER: 30472/114 IMMU FELECOMUNICATION INFORMATION: TELEPHONE: (703)836-9300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.7%; Score 32.2;
5.3%; Pred. No. 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: EP 91 114 300.6 FILING DATE: 26-AUG-1991 ATTORNEY/AGENT INFORMATION: REGISTRATION NUMBER: 29,768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/935,313
                         RELEVANT RESIDUES IN SEQ ID NO: US-08-035-558-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1800 Diagonal Road,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEX: 899149
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Foley & Lardner
                                                                               Cn 2.7%;
1 Similarity 49.4%;
82; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTR: .....
Z2313-0299
ZIP: Z2313-0299
COMPUTER READABLE FORM:
WENTIM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 7218 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pTZgpt-F1s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alexandria
                                                                                    Query Match
Best Local Similarity
     542-549
1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IMMEDIATE SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                         US-08-232-463-14/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-232-463-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE:
                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                             ద
                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                              ò
```

```
999 CICAGICCIGCIAIAITACIGICAIGGCCACIAIGGCAGAIGACCAGAICAGGIIIAAAI 1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1059 TCCCCGATAATCCGTCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGA 1118
                                                                      759 CAGGCGTGGATATGCAGGGTAACGGTCGCATGGCTTCATTATGCAATGCGGGCCAGTCG 818
                                                                                                                                                                                                        879 ATGGGTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTC 938
                                                                                                                                                                                                                                                                                     939 TTACGGGTGATGTAGGTTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGG 998
                                                                                                                         819 AAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACTTCCGCCATCAGATGCGCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1119 ATAAAAGTGACATCATGCCCTCTTTTTCTGGCTTCCGGAGCAATTTTACTTTTT 1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
    ;
0
Conservative 205; Mismatches 188; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: SCHEIFLINGER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESSE: Folgy & Lardher
STREET: 1800 Diagonal Road, Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29,768
FR: 30472/114 IMMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
APPLICATION NUMBER: EP 91 114 300.6
FILING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORMATION:
REGISTRATION NUMBER: 29,768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-232-463-14; Sequence 14, Application US/08232463; Patent No. 5670367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ZIP: 22313-0299
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO: 14: SEQUENCE CHARACTERISTICS: LENGTH: 7218 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Alexandria STATE: VA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
```

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             업
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                         328 GCAGIGCGCCGGTCCAIGCAGACACATCCCCCACGGGIAACAGCGICCCTGTCACATICI 387
                                                                                                                                                                                                                                                                                    388 TCTGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCCACGCCGGAGACTG 447
                                                                                                                                                                                                                                                                                                                                                          448 ACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGG 507
                                                                                                                                                                                                                                                                                                                                                                                                                                     508 CAATCCGGTAGACGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCA 567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               568 TICCCAGGIGITCIGICIGCTGACGCAGACGIGCIICGIAIICIICACGCCCGGCGCCCA 627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        628 CCACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAA 687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Broughton, Mary C.
APPLICANT: Crawford, Kathryn P.
APPLICANT: Madduri, Krishnamurthy
APPLICANT: Madduri, Krishnamurthy
APPLICANT: Treadway, Patti J.
APPLICANT: Treadway, Patti J.
APPLICANT: Treadway, Patti J.
APPLICANT: Turner, Jan R.
APPLICANT: Waldron, Clive
TITLE OF INVENTION: Biosynthetic Genes For Spinosyn Insecticide
TITLE OF INVENTION: Production
NUMBER OF SEQUENCES: 39
CORRESPONDENCE ADDRESS:
                                                                                                                                                                      ö
                                                                                                                                     Length 7218;
                                                                                                                               Query Match 2.7%; Score 31.8; DB 1; Length 7 Best Local Similarity 3.8%; Pred. No. 6.8; Matches 15; Conservative 204; Mismatches 176; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dow AgroSciences LLC Patent Department
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SYSTEM: PC-DOS/MS-DOS
PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US/09/036,987A
FILING DATE: 09-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1, Application US/09036987A Patent No. 6143526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9330 Zionsville Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: Baltz, Richard H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 09-MAR-1998
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Floppy disk
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; IMMEDIATE SOURCE:
; CLONE: pTZGPt-F1s
US-08-232-463-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: Indianapolis
STATE: Indiana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-036-987A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 13
                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                 622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    622
                                                                                                                                                                                                                                                                                                                                                                                              563 GCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    563 GCTCATTCCCAGGTGTTCTGTTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCGGC
                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:

APPLICANT: Baltz. Richard H

APPLICANT: Baroghton, Mary C

APPLICANT: Crawford, Rathryn P

APPLICANT: Crawford, Rathryn P

APPLICANT: Treadway, Pattl J

APPLICANT: Waldron, Clive

TITLE OF INVENTION: Blosynthetic Genes For Spinosyn Insecticide

FILE REFERENCE: 50409 DIVI

CURRENT APPLICATION NUMBER: US/09/370,700

EARLIER FILING DATE: 1999-08-09

EARLIER FILING DATE: 1998-03-09

NUMBER OF SEQ ID NOS: 39
                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                            Length 80161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 4; Length 80161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62473 GCCCGACGCGTGCCGACCTACCCGTTCCAGCGCGCAGCGG 62517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  623 GCCCACCACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTG 667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 623 GCCCACCACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTG 667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             46;
                                                                                                                                                                                                                                                                                                                DB 3;
                                                                                                                                                                                                                                                                                                                                  Pred. No. 37;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 31.4;
Pred. No. 37
                                                                                                                                                                                                                                                                                                              Score 31.4;
Pred. No. 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Saccharopolyspora spinosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 7, Application US/08353550
Patent No. 5744313
GENERAL INFORMATION:
APPLICANT: Williams, Lewis T.
NAME: Stuart, Donald R
REGISTRATION UNDHER: 28,479
REFERENCE,DOCKET NUMBER: 50,66
TELECOMMUNICATION INFORMATION:
TELEFAN: (317)337-4816
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/09370700 Patent No. 6274350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.7%;
56.2%;
                                                                                                                                                                                                                                             MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                            Query Match 2.7%;
Best Local Similarity 56.2%;
Matches 59; Conservative
                                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 80161 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59; Conservative
                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
Matches 59; Conservi
                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80161
                                                                                                                                                                                                                                                                     US-09-036-987A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 14
US-09-370-700-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-353-550-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         us-09-370-700-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 1
```

```
418 CACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAAC 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: 3100 No. 6218162west Center, 90 South Seventh Street CITY: Minneapolis STATE: Minnesor*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1425;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Krystal, Gerald
TITLE OF INVENTION: SH2-CONTAINING INOSITOL-PHOSPHATASE
NUMBER OF SEQUENCES: 24
ADDRESSEE: MERCHANT & GOULD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.2;
PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Mueller, Douglas P.
REGISTRATION NUMBER: 30,300
REFENCE/DOCKET NUMBER: M&G 7933.49-US-01
TELECOMMUNICATION:
TELEPHONE: 612-332-5300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.6%; Score 31.2;
54.3%; Pred. No. 4.
                                                      FILING DATE: 01-NOV-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATE: 08/353,550
FILING DATE: 09-DEC-1994
ATTORNEY/AGENT INFORMATION:
NAME: MUTPHY, MATTHEW B.
REGISTRATION NUMBER: P99,787
REFERENCE/DOCKET NUMBER: 2307K-5731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/08/664,962B
FILING DATE: 14-JUN-1996
CLASSIFICATION: 435
                  од-мови: US/08/551,687
01-NOV-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 3, Application US/08664962B Patent No. 6218162 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION TELEPHONE: 415-326-2400
                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                            TELEFAX: 415-326-2422
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                  TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 54.3
Matches 63; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO:
                                       APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1..1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: U.S.A. ZIP: 55402-4131
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; NAME/KEY:
; LOCATION:
US-08-551-687-7
                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-664-962B-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    510 CCCTGTGAATCAGAGAGCCTGCCACATTCTGGAGTGTCCCGAAGGGCTTGCCCAGGATGT 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            418 CACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAAC 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Williams, Lewis T.
APPLICANT: William M.
TITLE OF INVENTION: No. 5925547el Protein Domain Which Binds TITLE OF INVENTION: Tyrosine Phosphorylated Proteins TYROBERO'S: 9
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew
                    TITLE OF INVENTION: No. 5744313el Protein Domain Which Binds TITLE OF INVENTION: Tyrosine Phosphorylated Proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 1425;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       53; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: Townsend and Townsend and Crew
One Market Plaza, Steuart Tower, Suite 2000
                                                                                                 E: Townsend and Townsend Khourie and Crew One Market Plaza, Steuart Tower, Suite 2000
                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/353,550
FILING DATE: 09-DEC-1994
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Dow, Karen B:
REGISTRATION NUMBER: 29,684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; Score 31.2; DB
; Pred. No. 4.2;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                02307K-057300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                 ZIP: 94105
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 7, Application US/08551687 Patent No. 5925547 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: 02
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-326-2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 54.3%;
Matches 63; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 415-326-2422
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 1425 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: One rules CITY: San Francisco cmatE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
                                                            NUMBER OF SEQUENCES: 9
CORRESPONDENCE ADDRESS:
                                                                                                                                           CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1..1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : NAME/KEY:
; LOCATION:
US-08-353-550-7
                                                                                                     ADDRESSEE:
                                                                                                                                                                                COUNTRY:
                                                                                                                          STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-551-687-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
```

```
468 CCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAAC 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         408 CCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATA 467
                                                                           418 CACTGGCGATAACGGGCACGCGGAGACTGACGCTTCAGCCAGTACCATACCAAAC 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Gaps
                                           ö
       DB 4; Length 3031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 5; Length 3259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                           Indels
                                                                                                                                                                                                                                                                                                                 APPLICANT: LA JOLLA CANCER RESEARCH FOUNDATION
TITLE OF INVENTION: Brevican, A Glial Cell Proteoglycan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: PATENTING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PATENTIN Release #1.0, Version #1.25 APPLICATION DATA:
APPLICATION NUMBER: PCT/US95///27/
                                                                                                                                                                                                                                                                                                                                                                                         E: Campbell and Flores
4370 La Jolla Village Drive, Suite 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     68;
     Score 31.2; DE
Pred. No. 6.5;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 31.2; DE
Pred. No. 6.8;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: Imbra, Richard J.
REGISTRATION NUMBER: 37,643
REFERENCE/DOCKET NUMBER: FP-LJ 1453
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                            PCT-US95-03747-1/c; Sequence 1, Application PC/TUS9503747; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1904 GCTGGAAGCAGGGAAGGGGC 1885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         528 GCTGGGAAAGGGCACCTGC 547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E: Floppy disk
IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.68;
     Query Match
Best Local Similarity 54.3%;
Matches 63; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: (619) 535-9001
TELEFAX: (619) 535-8049
INFEMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3259 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 51.47
Matches 72; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
112..2848
                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: San Diego
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 2. CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE:
COMPUTER: IBM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 20
US-08-896-449A-1/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ZIP: 92122
                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
LOCATION:
PCT-US95-03747-1
                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE: C
                                                                                                             g
                                                                                                                                                   ò
                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                    418 CACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAAC 473
                                                                                                                                                                                                                                       Length 3031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 3, Application US/09311743
Patent No. 6238903
GENERAL INFORMATION:
APPLICANT: KTYSTAL, Gerald
TITLE OF INVENTON: SH2-CONTAINING INOSITOL-PHOSPHATASE
NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                           53; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                           DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:

RELIANG DATE: 14-May-1999
CLASSIFICATION: COURROWN
ATORNEY/AGENT INFORMATION:
NAME: Gravelle, Micheline
REGISTRATION NUMBER: 40, 261
REFERENCE/DOCKET NUMBER: 7711-32
TELECOMMUNICATION INFORMATION:
TELEPHONE: 416-364-7311
TELEFAX: 416-364-7311
                                                                                                                                                                                                                                       ; Score 31.2; DE; Pred. No. 6.5; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
NAME/KEY: CDS
;
LOCATION: 82..1503
;
SEQUENCE DESCRIPTION: SEQ ID NO: 3:
US-09-311-743-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: BERESKIN & PARR
STREET: 40 King Street West
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: Canada
ZIP: M5H 3Y2
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: linear
TLE TYPE: DNA (genomic)
                  TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
ORIGINAL SOURCE:
ORGANISM: HOMO Sapiens
STRAIN: ShC Proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN: Shc Proteins
                                                                                                                                                                                                                                         2.6%;
LENGTH: 3031 base pairs
                                                                                                                                                                                                                                     Query Match 2.6
Best Local Similarity 54.3
Matches 63; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Toronto STATE: Ontario
                                                                                                                                                               ; NAME/KEY: CDS
; LOCATION: 82..1503
US-08-664-962B-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-311-743-3
                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                     à
```

```
NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-403-768-7/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 8802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-132-652-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           390 TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGAC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   450 GCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCA 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Terrier is Caused by a Single Base Deletion in Exon Four of the von Willebrand Factor Gene Journal of the American Veterinary Medicine Association
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: 203..8641
OTHER INFORMATION: /function= "Blood Clotting Protein"
OTHER INFORMATION: /product= "Canine von Willebrand Factor"
OTHER INFORMATION: /standard_name= "vWF"
AUTHORS: Venta, Patrick J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 3; Length 8802;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                      GENERAL INFORMATION:
APPLICANT: Venta, Patrick J
APPLICANT: Yenta, Patrick J
APPLICANT: Tuzbasiyan-Gurkan, Vilma
APPLICANT: Schall, William D
APPLICANT: Brewer, George J
TITLE OF INVENTION: DNA ENCODING CANINE VON WILLEBRAND
TITLE OF INVENTION: PACTOR AND METHODS OF USE
NUMBER OF SEQUENCES: 11
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DATE: 1996
RELEVANT RESIDUES IN SEQ ID NO: 1: FROM 1 TO 8802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : Brewer, George J. Von Willebrand's Disease in the Scottish
                                                                                                                                                                                                                                                                                                                                                                                                              OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                              Harness, Dickey & Pierce, P.L.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.6%; Score 31.2; Di
50.0%; Pred. No. 12;
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY AGENT INFORMATION:
NAME: Smith, Deann F.
REFERENCE/DOCKET NUMBER: 2115-001226
TELECOMMUTCATION INFORMATION:
TELEFAX: 248-641-1600
TELEFAX: 248-641-0270
TELEFAX: 287637
INFORMATION FOR SEO ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 8802 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/08/896,449A FILING DATE: 18-JUL-1997 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS: Li, Jianping
AUTHORS: Yuzbasiyan-Gurkan, Vilma
AUTHORS: Schall, William D.
AUTHORS: Brewer
Sequence 1, Application US/08896449A Patent No. 6040143
                                                                                                                                                                                                                                                5445 Corporate Drive
                                                                                                                                                                                                                                                                                                                                                                                               IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best_Local Similarity 50.03
Matches 78; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                         Michigan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                              COUNTRY: USA
ZIP: 48098
                                                                                                                                                                                                                              ADDRESSEE: 1
STREET: 544:
CITY: Troy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL:
                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                    STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç
```

```
APPLICANT: Lam, Joseph S.
APPLICANT: Lam, Joseph S.
APPLICANT: Lam, Joseph S.
APPLICANT: Burrows, Lori L.
APPLICANT: Burrows, Lori L.
APPLICANT: Walsh, Andrew
APPLICANT: Walsh, Andrew
TITLE OF INVENTION: No. 6444804el Proteins Involved in the Synthesis and Assembly
TITLE OF INVENTION: No. 6500-17
CURRENT APPLICATION NUMBER: US.099403,768
CURRENT PILING DATE: 1999-11-02
PRIOR FILING DATE: 1997-05-02
                                                                                                                                                                                                                      | Fateni Nu. Ou/a634
| GENERAL INFORMATION:
| GENERAL INFORMATION:
| APPLICANT: Yuzbasiyan-Gurkan, Vilma |
| APPLICANT: Yuzbasiyan-Gurkan, Vilma |
| APPLICANT: Stanl, William D |
| APPLICANT: Brewer, George J |
| APPLICANT: Duffendeck, John |
| TITLE OF INVENTION: DNA ENCODING CANINE VON WILLEBRAND FACTOR AND METHODS |
| TITLE OF INVENTION: OF USE |
| FILE REFERENCE: 21155-001226CPB |
| CURRENT APPLICATION NUMBER: US/09/132,652 |
| CURRENT FILLING DATE: 1998-08-11 |
| EARLIER APPLICATION NUMBER: 08/896,449 |
| SARLIER FILING DATE: 1997-07-18 |
| NUMBER OF SEQ ID NOS: 29 |
| SOFTWARE: Patentin Ver. 2.0 |
| SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  390 TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGAC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       450 GCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 8802;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          78; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7539 TCCTCCCAGAACTGGCCCACAGGGTAGATGGTGCCT 7504
                                                7539 TCCTCCCAGAACTGGCCCACAGGGTAGATGGTGCCT 7504
510 ATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCT 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 31.2; DE Pred. No. 12; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
ORGANISM: Pseudomonas aeruginosa rfaG (waaG)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UMBER: U.S. 60/046,149
1997-05-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 7, Application US/09403768 Patent No. 6444804 GENERAL INFORMATION:
                                                                                                                                                                                 ; Sequence 1, Application US/09132652; Patent No. 6074832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 2.6%;
Best Local Similarity 50.0%;
Matches 78; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA ORGANISM: Canis familiaris
```

```
471 AACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACGGTAACGCT
                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: DeLuca, Hector F.
APPLICANT: Ross, Troy K.
APPLICANT: Prall, Jean M.
TITLE OF INVENTION: Method Of Producing
TITLE OF INVENTION: 1,25-Dihydroxyvitamin D3 Receptor Protein
NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE: Carl R. Schwartz, Esq., c/o Quarles & Brady
STREET: 411 East Wisconsin Avenue
CITY: Milyaukee
STATE: Wisconsin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS: O'Malley, Bert W.
TITLE: Cloning and expression of full-length cDNA
TITLE: encoding human vitamin D receptor
JOURNAL: Proc. Natl. Acad. Sci. U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/737,736B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96-296-2185-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Crisp, Tracey M.
Mangelsdorf, David J.
Haussler, Mark R.
Pike, J. W.
Shine, John
                                                                                                                                                                                                                                                                                                      Sequence 5, Application US/07737736B Patent No. 5260199
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435
ATTORNEY AGENT INFORMATION:
REGISTRATION NUMBER: 29,437
REFERENCE/DOCKET NUMBER: 96-27
TELECOMMUNICATION INFORMATION:
TELEPHONE: 414-277-5715
TELEFAX: 414-277-5774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            McDonnell, Donald P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IBM PC compatible
                                                                                                                                                                                            5781 GGATAGATTTCACC 5794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP: 53202
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Baker, Andrew R
                                                                                                                                                      531 GGGAAAGGGCACC 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1399 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hughes, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUCLEIC ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE: CDNA HYPOTHETICAL: NO ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGINAL SOURCE
                                                                                                                                                                                                                                                                                    .07-737-736B-5/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                           RESULT 24
                                                                                                         셤
                                                                                                                                                      ð
                                                                                                                                                                                            셤
                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-961-527-155
; Sequence 155, Application US/08961527
; Patent No. 6420135
; Patent No. 6420130:
; Patent No. 6420108:
; Patent No. 6420108:
; Patent No. 6420108:
; TITLE OF INVENTION: Streptococcus pneumoniae Polynucleotides and Sequences
; NUMBER OF SEQUENCES: 391
; CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5601 ACATCTTCCTTCTCAAATAAAATCCATCAACCCTATGTTCAATAATTTCACTTAACCCG 5660
                                                                                                                                                                                          363 GGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCGGCCCGTCTCACTG 422
                                                                                                                                                                                                                                                                               423 GCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTT 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       411 CCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCA 470
                                                                                                                                                                                                                                     956 GGCAGCACCCGCCCGGCGTCGGCCTCGGCGATGTGGGCCATAGCCGCAGACATCGGTC 897
                                                                                                                                                                                                                                                                                                                          896 ACCAACACCGGCAGGCCGGAGACCAGCGCCTCCAGCAGCACCGTACCGGTGTTCTCGTTG 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    351 ACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTGTGAATGACATCAGGGATCCCG
                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                 OTHER INFORMATION: Description of Organism: Pseudomonas aeruginosa; OTHER INFORMATION: serotype 05 strain PAO1 US-09-403-768-7
                                                                                                       Query Match
2.6%; Score 30.8; DB 4; Length 1122;
Best Local Similarity 50.7%; Pred. No. 4.9;
Matches 74; Conservative 0; Mismatches 72; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 6474;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 30.8; DB 4; Length 6 Pred. No. 14; 0; Mismatches 102; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.4Mb storage.
COMPUTER: HP Vectra 486/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Human Genome Sciences, Inc. STREET: 9410 Key West Avenue CITY: Rockville STATE: Maryland COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                  483 TCCGAAGGCATGACCACCACACTGGC 508
                                                                                                                                                                                                                                                                                                                                                                                                           836 TAGGCCGGGTGGATCAGCAGGTCGGC 811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OPERATING SYSTEM: MSDOS version 6.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/961,527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Brookes, A. Anders
REGISTRATION NUMBER: 36,373
REFERENCE/DOCKET NUMBER: PB
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE: (301) 309-8504
TELEFAX: (301) 309-8512
INFORMATION FOR SEQ ID NO: 155:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 47.4%;
Matches 92; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 6474 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-961-527-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ILING
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 23
                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
```

ö

ð q δ a ŏ

```
284 GGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCCAGTGCGCCGGTCCA 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             261 GGCGGTGACGCCCCGCGCCCGCGCATGCGAAGCAAAAAAACTGCTGGAAGTCGCTTAC 202
                                                                                                                                                                        323 ATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCAC 382
                                                                                                                                                                                               2.6%; Score 30.4; DB 2; Length 3382;
48.3%; Pred. No. 13;
ative 0; Mismatches 91; Indels 0;
                                                                                   Score 30.4; DB 4; Length 780;
Pred. No. 5.4;
0; Mismatches 31; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: BABIUK, LORNE
APPLICANT: VAN DEN HURK, SYLVIA
APPLICANT: ZAMB, TIM
APPLICANT: ZAMB, TIM
APPLICANT: FIZPATRICK, DAVID
TITLE OF INVENTION: RECOMBINANT BOVINE HERPESVIRUS TYPE 1
TITLE OF INVENTION: POLYPEPTIDES AND VACCINES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFWARE: Patentin Release #1.0, Version #1.30 SOFWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/682,847
FILING DATE: 12-JUL-1996
VITORNEY APPLICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29310-20005.10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: MORRISON & FOERSTER STREET: 755 PAGE MILL ROAD
                                                                                                                                                                                                                                                                383 ATTCTTCTGAATGACATCAG 402
                                                                                                                                                                                                                                                                                         231 CTTATTAACACTGACATCGG 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY AGENT INFORMATION:
NAME: PARK, FREDDIE K.
REGISTATION UNDRER: 35.636
REFERENCE/DOCKET UNDRER: 2931
TELEDOMUNICATION INFORMATION:
TELEPHONE: (415) 813-5600
                                                                                                                                                                                                                                                                                                                                                                                 US-08-682-847-1/c; Sequence 1, Application US/08682847; Patent No. 5858989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 94304-1018
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEX: 706141
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 3382 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (415) 813-5600
(415) 494-0792
                                                                                            Query Match 2.6%;
Best Local Similarity 61.2%;
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       85; Conservative
                             ORGANISM: Escherichia coli
US-09-650-855-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             432..3230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 85; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: USA
ZIP: 94304-1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PALO ALTO
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: nucleic STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; LOCATION:
US-08-682-847-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  å
                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 26, Application US/09650855
Sequence 26, Application US/09650855
Sequence 26, Application US/09650855
Serent No. 6365355
GERERAL INFORMATION:
APPLICANT: MCCUTHEN-MALONEY, SANDRA
APPLICANT: LAWRENCE LIVERMORE NATIONAL LABORATORY
TITLE OF INVENTION: CHIMERIC PROTEINS FOR DETECTION AND QUANTITATION OF DNA
TITLE OF INVENTION: MUTATIONS, DNA SEQUENCE VARIATIONS, DNA DAMAGE AND DNA
TITLE OF INVENTION: MISMATCHES
FILE REFERENCE: LL-10284
CURRENT APPLICATION NUMBER: US/09/650,855
CURRENT FILING DATE: 2000-08-29
PRIOR PALICE DATE: 2000-08-28
                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              323 ATCGCGCAGTGCGCCCGGTCCATGCAGACACATCCCCCCACGGGTAACAGCGTCCCTGTCAC 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 26, Application US/09651656
Sequence 26, Application US/09651656
GENERAL INFORMATION:
APPLICANT: MCGUTHEN-MALONEY, SANDRA
APPLICANT: LAWRENCE LIVERNORE NATIONAL LABORATORY
TITLE OF INVENTION: DETECTION AND QUANTITATION OF SINGLE NUCLEOTIDE
TITLE OF INVENTION: POLYMORPHISMS, DNA MISMATCHES
FILE REFERENCE: IL-10689
CURRENT PELLING NUMBER: US/09/651,656
CURRENT FILING DATE: 2000-08-29
PRIOR FILING DATE: 2000-08-29
PRIOR PELLING DATE: 2000-08-28
MINARED OF SEO, TO MOS. 106
                                                                                                                                                                                                      813
                                                                                                                     694 GTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCTGATG 753
                                                                                                                                                                                                                                 754 CAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCATGGCTTCATTATGCAATGCGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Gaps
                                                                                 Gaps
                                                                              ö
             ; DB 1; Length 1399;
5.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.6%; Score 30.4; DB 4; Length 780; 61.2%; Pred. No. 5.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                              Indels
                                                                              59;
                                      Score 30.6; DE Pred. No. 6.5; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 231 CTTATTAACACTGACATCGG 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      383 ATTCTTCTGAATGACATCAG 402
                                      Query Match 2.6%;
Best Local Similarity 52.8%;
Matches 66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 106
SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; TYPE: DNA; ORGANISM: Escherichia coli
US-09-651-656-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS:
SOFTWARE: Patentin V
SEQ ID NO 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
                                                                                                                                                                                                                                                                                                814 AGTCG 818
                                                                                                                                                                                                                                                                                                                                        211 AGTGG 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-650-855-26/c
                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 25
US-09-651-656-26/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 26
LENGIH: 780
US-07-737-736B-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
```

δ g ð

By

ö 311

ö

371

431

```
2057 TGCAGCCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCGCTACGCCGCCGACCACG 2116
                                                                                                                                                                                                                                                                                                                                  252 TCAAACCGGTACTCAATATCTTCTCTGGCGCTGCCTGCCATCATCCGGAAGCGTTCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                       312 CGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method For Preparing Same
TITLE OF INVENTION: Mutasynthesis
                                                                                                                                                                                                                                                             Length 2888;
                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/041,886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 72
CORRESPONDENCE ADDRESS:
ADDRESSEE: Campbell & Flores LLP
STREET: 4370 La Jolla Village Drive, Suite 700
CITY: San Diego
STATE: California
                                                                                                                                                                                                                                                                                                Mismatches 118;
                                                                                                                                                                                                                                                           DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: Proapoptotic Peptides, De
                                                                                                                                                                                                                                                           Score 30.2;
Pred. No. 13;
                                                   FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFWARE: Patentin Ver. 2.0
SEQ ID NO 1
LENGTH: 2888
                                                                                                                                                                                                     Streptomyces pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P-LJ 2626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
CMDUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 24, Application US/09041886 Patent No. 6235872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
ATTORNEY/ACENT INFORMATION:
NAME: Campbell, Cathryn A.
RECISTRATION NUMBER: 31,815
REFERENCE/DOCKET NUMBER: P-LJ
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: Bredesen, Dale E.
APPLICANT: Rabizadeh, Sharroz
                                                                                                                                                                                                                                                         2.6%;
illarity 46.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: (619) 535-9001
TELEFAX: (619) 535-8949
INFORMATION FOR SEQ ID NO: 24
SEQUENCE CHARACTERISTICS:
LENGTH: 4608 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE: California
COUNTRY: United States
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic acid
                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: nuclei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  92122
                                                                                                                                                                                                                                                                              Best Local Sim
Matches 101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-041-886-24
                                                                                                                                                                                                     ; ORGANISM: St
US-08-765-907A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2117
                                                                                                                                                                                                                                                       Query Match
Best Local 9
                                                                                                                                                                                      TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         å
                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             344 TGCAGACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGG 403
                                                 GGCCCACCGCCCCCCGCGCCCCCAGCATAAACGCGGCCAGCTCCTTCAGGTGCGG 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             252 TCAAACCGGTACTCAATATCTTCTCTGGCGCTGCCTTCATCCGGAAGCGTTCCGGT 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               65 rcGACGCGCTGCGCCCCCCTGGACGCCGGGACGCCGCCTGCTGGACGCCGTCCGCA 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    312 CGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACATCCCCCCACGGGTAACAGC 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               404 GATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCA 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                               141 GAGCAGGCCCACGTTTTCCACGCTAAAGTACAGCGCGGTGTTTGGCGGCTGCGCGA 86
                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSET, Gilles
TITLE OF INVENTION: Streptogramins And Method For Preparing Same ITILE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
FURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 4; Length 387;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches 118; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    245 GCATCGACCCCGCCTTCCTGCGCACCTGTACGACACGA 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 30.2;
Pred. No. 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: DNA ORGANISM: Streptomyces pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
APPLICANT: BAMAS-JACOUES, Nathalle
APPLICANT: BLANCHE, Francis
                                                                                                                                                                                                                                                                                      THIBAUT, Denis
BAWAS-JACQUES, Nathalie
BLANCHE, Francis
COUZET, Joel
                                                                                                                                                                                                                 Sequence 4, Application US/08765907A
Patent No. 6352839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1, Application US/08765907A
Patent No. 6352839
                                                                                                                                                                                                                                                                                                                                                             BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 2.6%;
Best Local Similarity 46.1%;
Matches 101; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PARIS, Jean-Marc
                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: BLANC, Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUZET, Joel
                                                                                                                                                                                RESULT 28
US-08-765-907A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-765-907A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-765-907A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 4
LENGTH: 387
                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                               APPLICANT
                                                셤
                                                                                      å
                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                 å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç
```

```
559 CICCGCICATICCCAGGIGITCIGICIGCIGACGCAGACGIGCIICGIATICIICACGCC 618
                                                                                                                                                                                                                                                                                         3657 TCTGGAGAGGTCGCTCGCTGCCCGAGCCCCCCGGGCCAAGCTCATGATTCCCATGGA 3716
                                                                                                                                                                                                                                                                                                                                                                            3717 TGCCCAGTCCAACAATCCTGCTGTCGTGAGCGCCATCCCGGTGCCAACGCTAGAAAGTGC 3776
                                                                                                                                                                                                                                                                                                                                                                                                                                                200 CNCCNCCNACNCCNAGNCAYFSNAGNTGYCCNCCNAAYCAYACNGTNWSNWSNGCNWSNY 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              619 CGGCGCCCACCACCAGGGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACAC 678
                                                                                                                                                                                                                                                                                                                                                                                                                        393 ATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCT 452
                                                                                                                                                                                                                                                                                                                                     333 GCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGA 392
                                                                                                                                                                                                                                                      273 TCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAAATCGCGCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BETA-1, 3-GALACTOSYLTRANSFERASE HOMOLOG, ZNSSP6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1134;
                                                                                                                                                                     Length 4608;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.5%; Score 29.4; DB 4; Length 1
Best Local Similarity 21.7%; Pred. No. 14;
Matches 66; Conservative 53; Mismatches 185; Indels
                                                                                                                                                                        Score 29.6; DB 5; Length 40
Pred. No. 28;
0; Mismatches 109; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Gao, Zeren
APPLICANT: Whitmore, Theodore E.
APPLICANT: Jaspers, Stephen
TITLE OF INVENTION: POLYNUCLEOTIDES ENCODING
TITLE OF INVENTION: BETA-1,3-GALACTOSYLTRANSFE
TILE REFERENCE: 98-80
CURRENT APPLICATION NUMBER: US/09/482,180A
CURRENT PILING DATE: 2000-01-12
PRIOR PILING DATE: 1999-01-12
PRIOR PILING DATE: 1999-01-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 20
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: Variation
| LOCATION: (1)...(1144)
| OTHER INFORMATION: n is any nucleotide
| NAME/KEY: misc_feature
| COCATION: (1)...(1134)
| OTHER INFORMATION: n = A,T,C or G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION: degenerate sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             453 TCAGCCAGTACCATACCAAACGCT 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 3, Application US/09482180A
Patent No. 6361985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA ORGANISM: Artificial Sequence
        ORGANISM: Homo sapiens
POSITION IN GENOME:
CHROMOSOME/SEGMENT: 18q21
                                                                                                                                                                          Query Match 2.5%;
Best Local Similarity 46.6%;
Matches 95; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
APPLICANT: CONKILI, Darrell
APPLICANT: Yamamoto, Gayle
APPLICANT: Gao, Zeren
                                                                                                               1..4342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 1134
                                                                                             NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-482-180A-3
                                                                                                               ;
LOCATION:
PCT-US94-05277-1
                                                                          FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                              3717 TGCCCAGTCCAACAATCCTGCTGTCGTGAGCGCCATCCCGGTGCCAACGCTAGAAAGTGC 3776
                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                       393 ATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCT 452
                                                                                                                                                                                                                                                                                                      333 GCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGA 392
                                                                                                                                                                                                                          273 TCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGT 332
                                                                                                                                                                                   Gaps
                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Johnson, Karen
APPLICANT: Kinzler, Kenneth W.
APPLICANT: Kinzler, Kenneth W.
APPLICANT: Zabrecky, James R.
TITLE OF INTENTION: Antibodies Specific for DCC Gene Product
CORRESPONDENCE: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                           DB 4; Length 4608;
                                                                                                                                         Score 29.6; DB 4; Length 4
Pred. No. 28;
0; Mismatches 109; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US94/05277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E: Banner, Birch, McKie & Beckett
1001 G Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: Kagan, Sarah A.
REGISTRATION NUMBER: 32,141
REFERENCE/DOCKET NUMBER: 01107.42709
TELECOMMUNICATION INFORMATION:
TELEPRONE: 202.508.9100
TELEPRONE: 202.508.999
TELERA: 197430 BBMB UT
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    453 TCAGCCAGTACCATACCAAACGCT 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1, Application PC/TUS9405277 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bruskin, Arthur
Jarosz, David E.
                                                                                                                                         Query Match 2.5%;
Best Local Similarity 46.6%;
Matches 95; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 4608 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nucleic acid
                                             , LOCATION: 1..4342
US-09-041-886-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: B
APPLICANT: J
APPLICANT: J
APPLICANT: R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STATE:
                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                δ
```

```
260 TNWSNYTNCCNWSNMGNCAYMGNYTNTTYYTNACNTAYMGNCAYTGYMGNAAYTTYWSNA 319
                                          679 GCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAA 738
                                                                                                                             739 CATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCATGGCTTCAT 798
                                                                                                                                                                                                                199 TATGCAATGCGGGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTT 858
                                                                                   320 THYINYINGARCCNWSNGGNIGYWSNAARGAYACNTIYYINYINYINGCNATHAARWSNC 379
                                                                                                                                                                      380 ARCCNGGNCAYGTNGARMGNMGNGCNGCNATHMGNWSNACNTGGGGNMGNGTNGGNGGNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATE: PROFINE PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEE: CUSHWAN DARBY & CUSHWAN
SEE: Intellectual Property Group of
SEE: Pillsbury Madison & Sutro LLP
... 1100 New York Avenue, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: GUAN, HANPING
TITLE OF INVENTION: MODIFICATION OF STARCH
TITLE OF INVENTION: SYNTHESIS IN PLANTS
NUMBER OF SEQUENCES: 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: Paul N. Kökulis
REGISTRATION NUMBER: 16,773
REFERENCE/DOCKET NUMBER: 222957/1.02.15C
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 861-3000
TELEPRAX: (202) 861-3000
TELEPRAX: (202) 862-0944
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/572,951
FILLING DATE: 15-DEC-1995
CLASSIFICATION: 800
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/346,602
FILING DATE: 29-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: ... 800
CLASSIFICATION: 800
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/263,921
FILING DATE: 21-JUN-1994
                                                                                                                                                                                                                                                                                                                                                                                                                               . 08-572-951-3/c
Sequence 3, Application US/08572951
Patent No. 5824790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEELING, PETER L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KNIGHT, MARY E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 21-JUN-1994
CLASSIFICATION: 800
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20005-3918
                                                                                                                                                                                                                                                                                                    859 CCGC 862
                                                                                                                                                                                                                                                                                                                                          500 CNGC 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                   8 S
                                                                                                                                                                                                                                                  g
                                            ò
                                                                            q
                                                                                                                             ö
                                                                                                                                                                                                                                                                                                    ò
```

2.5%; Score 29.2; DB 1; Length 2380;

Query Match

```
1686 YTGNACRICYTGNCCNGCDAT-----CCARTGDAINGCRICNGCDAIDAIRICNACNCC 1633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1926 RTCNCKNARNCCNCCNACNGCRTGNACNACNGGNACNGTNCCRTANGCCATNGCRTANAR 1867
                                                                                                                                                                                                                                                                                                                                            1746 NSWYTCRAANCKNCKNARCATRTCYTCNARRTCNGCNCKNCCNGTNCCNARCATNACNAR 1687
                                                                                                                                                  517
                                                                                                                                                                                                                                                                                                         637
                                                                                                                                                                                                                                                                                                                                                                                    697
                                                                   398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC
                                                                                                                                                458 CAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTA
                                                                                                                                                                           518 GACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                698 ITTITCGGGACGIAGCATCCCCACCIGAACGAIAAGCGGAACAIIGICTGCTGCTGCAGC
                                                                                                                                                                                                                                                                                                     578 ITCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCGGCGCCCCACCACGAGCCA
                                                                                                                                                                                                                                                                                                                                                                                  638 GCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCATGTCC
                                  Gaps
                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 48, 40711cation US/08832883
Sequence 48, 407681
GENERAL INFORMATION:
APPLICANT: Glordano, Antonio
APPLICANT: Baldi, Alphonso
TITLE OF INVENTION: METHODS FOR THE DIAGNOSIS AND PROGNOSIS
TITLE OF INVENTION: OF CANCER
NUMBER OF SEQUENCES: 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E: SEIDEL, GONDA, LAVORGNA & MONACO, P.C. Suite 1800 Two Penn Center Plaza
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/832,883
                                222;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Monaco, Daniel A
REGISTATION NUMBER: 30,480
REFERENCE/DOCKET NUMBER: 8121-13 US1
RELECOMUNICATION INFORMATION:
TELECOMUNICATION INFORMATION:
TELERAX: (215) 568-8383
INFORMATION FOR SEQ ID NO: 48:
              Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1572 NCCNARYTGNCKYTGNARNG 1553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             758 CCAGGCGTGGATATGCAGGG 777
28.98; Pic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E: Floppy disk
IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; MOLECULE TYPE: DNA (genomic) US-08-832-883-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 3865 base pairs
                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleic acid
EDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Philadelphia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
          Best Local Similarity
Matches 110; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Philac
STATE: PA
COUNTRY: USA
ZIP: 19102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -08-832-883-48/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                     g
                                                                                                                                                ð
                                                                                                                                                                                   g
                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

```
1056 GCTAGACCAG 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 37
5405943-1/c
; Patent NO. 5405943
; TAPLICANT: COMINGS, DA
; TITLE OF INVENTION: TC
                                                                                                                                                                                                                                                                                                                                 ORGANISM: Homo sapiens
US-09-293-505-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGIH: 748
                                                                                                                                                                                                                                                                                                   4004
                                                RESULT 36
US-09-293-505-8
                                                                                                                                                                                                                                                                                                                     TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO:1
                                                                                                                                                                                                                                                                                                     LENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; BEHAVIORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5405943-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1176 TGAACTCAGGTGATTCGCCTGCCTCAGCCTCATAAAGTGCTGGGATTACAGGCGTGAGC 1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        454 CAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCC 513
                                                                                                                 1176 TGAACTCAGGTGATTCGCCTGCCTCAGCTCATAAAAGTGCTGGGATTACAGGCGTGAGC 1117
                                                                                                                                                                  ö
                                                                                                                                                    394 TGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTT
                                                                                   394 TGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTT
                                                      Gaps
                                                                                                                                                                                                                                                                                                                               Sequence 48, Application US/08832877
Patent No. 5840506
GENERAL INFORMATION:
APPLICART: Glordano, Antonlo
TITLE OF INVENTION: METHODS FOR THE DIAGNOSIS AND PROGNOSIS OF
TITLE OF INVENTION: CANCER
NUMBER OF SEQUENCES: 116
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEIDEL, GONDA, LAVORGNA & MONACO, P.C.
STREET: SLILE 1800 TWO Penn Center Plaza
CITY: Philadelphia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 3865;
                   Length 3865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       63; Indels
                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPOTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPOTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/832,877
                                                    63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
                    DB 1;
                   Score 29.2; DB; Pred. No. 34; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 29.2; DE Pred. No. 34; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACTORNEY/AGENT INFORMATION:
NAME: Monaco, Daniel A
REGISTRATION NUMBER: 30.480
REFERENCE/DOCKET NUMBER: 3311-13 US2
REFERENCE/FOCKET NUMBER: 3311-13 US2
TELECOMUNICATION INFORMATION:
TELECOMUNICATION INFORMATION:
TELEFAR: (215) 568-838
INFORMATION FOR SEQ ID NO: 48:
SEQUENCE CHARACTERISTICS:
LENGTH: 3865 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; MOLECULE TYPE: DNA (genomic) US-08-832-877-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 2.5%;
Best Local Similarity 51.5%;
Matches 67; Conservative
                    Query Match 2.5%;
Best Local Similarity 51.5%;
Matches 67; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                           1056 GCTAGACCAG 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTAGACCGG 523
                                                                                                                                                                                                                          514 GGTAGACCGG 523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION: 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19102
                                                                                                                                                                                                                                                                                                                            US-08-832-877-48/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: Ph.
STATE: P.
COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           514
                                                                                                                                                                                                                                                                                                            RESULT 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                          g
                                                                                                                                                                                                                                                         g
                                                                                                                           셤
                                                                                                                                                           ŏ
                                                                                                                                                                                                                          ò
```

```
1073 TCGAAGTCTGAGGATGGAAGGAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATC 1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1013 ATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCG 1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 285 CITAAACCAGAGTICATAAGCITGATGAGTTATGATAAAAAGATGTICATCATGATTT 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   411 CCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCA 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DAVID E. TOURETTE SYNDROM, AUTISM AND ASSOCIATED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 29; DB 6; Length 748;
Pred. No. 15;
0; Mismatches 65; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                     28; Indels
                                                                                                                                                                                                                                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                                                                                                                                                                          Score 29.2; DE
Pred. No. 35;
0; Mismatches
                                           GENERAL INFORMATION:
APPLICANT: de Sauvage, Frederic
APPLICANT: Carpenter, David A.
TITLE OF INVENTION: Patched-2
FILE REFERENCE: P1405R1
CURRENT APPLICATION NUMBER: US/09/293,505
CURRENT FILING DATE: 1999-04-15
EARLIER FILING DATE: 1998-04-15
HUMBER OF SEQ ID NOS: 32
SEQ ID NO 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/562,596
FILING DATE: 03-AUG-1990
FILING APPLICATION DATA:
APPLICATION NUMBER: 125,577
FILING DATE: 25-NOV-1987
APPLICATION NUMBER: 271,653
FILING DATE: 16-NOV-1988
APPLICATION NUMBER: 410,831
FILING DATE: 22-SEP-1989
; Sequence 8, Application US/09293505
; Patent No. 6348575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.5%;
Best Local Similarity 51.1%;
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3637 AACACATATTGTTC 3650
                                                                                                                                                                                                                                                                                                                                                                                               Query Match 2.5%;
Best Local Similarity 62.2%;
Matches 46; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1133 ATGCCCTCTTTT 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     471 AACGCTTCATTTTC 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        225 ATTICCTITIGIT 213
```

```
173 GAGGATCCGCCGTTATCTGTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGAT 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       coli 0157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 5338;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: US
ZIP: 53701-2113
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.44Mb storage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Blattner, Frederick R.
Burland, Valerie
Perna, Nicole T.
Plunkett, Guy
Welch, Rod
TITLE OF INVENTION: No. 6365723el Sequences of E. col
NUMBER OF SEQUENCES: 265
CORRESPONDENCE ADDRESS:
ADDRESSES: Quarles & Brady
STREET: 1 South Pinckney Street
CITY: Madison
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         233 CTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATATCTT 273
                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.4Mb storage
COMPUTER: HP Vectra 486/33
OPERATING SYSTEM: MSDOS Version 6.2
SOFTWARE: ASCII Text
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
2.5%; Score 29; DB 4
Best Local Similarity 55.4%; Pred. No. 48;
Matches 56; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Word Perfect 8.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/453,702B
FILING DATE: 03-Dec-1999
CLASSIFICATION: 
CLASSIFICATION:
CLASSIFICATION:

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/110,955
                                                                                                                                                                                                               FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:-
APPLICATION NUMBER:-
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Brookes, A. Anders
REFISTRATION NUMBER: 36,373
REFISERNEC/POCKET NUMBER: PB340P1
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                               APPLICATION NUMBER: US/08/961,527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-453-702B-39/c
; Sequence 39, Application US/09453702B
; Patent No. 6365723
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE: (301) 309-8504
TELEFAX: (301) 309-8512
INFORMATION FOR SEQ ID NO: 50:
SEQUENCE CHARATERISTICS:
LENGTH: 533@ base_pairs
                                                                                                                                                                        CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
Maryland
: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE: WI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 50, Application US/08961527
Patent No. 6420135
GENERAL INFORMATION:
GENERAL INFORMATION:
TITLE OF INVENTION: Streptococcus pneumoniae Polynucleotides and Sequences NUMBER OF SEQUENCES: 391
CORRESPONDENCE ADDRESS:
ADDRESSEE: Human Genome Sciences, Inc.
STRRET: 9410 Key West Avenue
CITY: Rockville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           173 GAGGATCCGCCGTTATCTGTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGAT 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       905 GATGATATGCCCTTTGCTGCTTTCCTTCATACGAGCCGCAAGGTGACGAGACAGATTCAT 846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 29; DB 4; Length 1426;
Pred. No. 22;
0; Mismatches 45; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            845 CAGGCAAAGGTATTGACCTCAAACATCTGGTGAATATCTT 805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   233 CTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATATCTT 273
                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: USA

2.TF: 19406-0939

COMPUTER READBLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEO for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/858,207A
FILING DATE: 09-MAY-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                    ADDRESSEE: SmithKline Beecham Corporation
STREET: 709 Swedeland Road
CITY: King of Prussia
                                                                                                                                                                                        APPLICANT: Nicholas, Richard
APPLICANT: Stodola, Robert
TITLE OF INVENTION: No. 6348328el Compounds
UNMER OF SEQUENCES: 552
CORRESPONDENCE ADDRESS:
                                  US-08-858-207A-78/c
; Sequence 78, Application US/08858207A
; Patent No. 6348328
; GENERAL INFORMATION;
APPLICANT: Black, Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/017670
FILING DATE: 14-MAY-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Gimmi, Edward R
REGISTRATION NUMBER: 38,891
REFERENCE/DOCKET NUMBER: P5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION:
TELEPHONE: 610-270-4478
TELEFAX: 610-270-5090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 1426 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                              Hodgson, John
Knowles, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 55.4
Matches 56; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-858-207A-78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-961-527-50
                                                                                                                                                                        APPLICANT:
APPLICANT:
                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                  STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

```
910 ACAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTTTGTCTGACAA 969
                                                                                                                                                                                                                                                                                                                                               240 ACTGGTAAATACTGTAATAGAAGATGGAGATATGGTGGATATAGGTTTTGGAAATATAAA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Irene Leigh
APPLICANT: Harald Zur Hausen
TITLE OF INVENTION: DNA CODING FOR A PEPTIDE OF A PAPILLOWA
TITLE OF INVENTION: VIRUS MAIN CAPSIDE PROTEIN AND USE THEREOF
NUMBER OF SEQUENCES: 9
CORRESPONDENCES: ADDRESSE: ADDRESSE: Pennie & Edmonds LLP
STREEF: 1155 Avenue of The Americas
CITY: New York
STATE: New York
                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/09/430,010
                                                                                                                                                                                                                 Score 28.6; DB 3;
Pred. No. 19;
0; Mismatches 39;
                                                                                                                                                                                                                                                                                                                                                                                             970 TAGTGAAGCGGTGACAGCATATCAGACGGCT 1000
                                                                                                                                                                                                                                                                                                                                                                                                                    300 TAATAAAACCCTGTCAGCAAATAAGTCAGAT 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: Vladimit: Shamanin
APPLICANT: Ethel Michele De Villiers
APPLICANT: Zur Hausen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/578,634
FILING DATE: 26-JAN-1996
ATTORNEY/AGDIT INFORMATION:
NAME: Abrams, Samuel B
REGISTRATION NUMBER: 30,605
TELECOMMUNICATION INFORMATION:
TELEPHONE: (650),493-4935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: FIAPPY DISK
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 2, Application US/09430010 Patent No. 6395512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (650) 493-4935
(650)493-5556
                                                                                                                                                                                                                     Query Match 2.4%;
Best Local Similarity 57.1%;
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            668 base pairs
LENGTH: 668 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (650)493-5556
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: linear MOLECULE TYPE: DNA
                                                                  TOPOLOGY: linear MOLECULE TYPE: DNA FEATURE:
                                                                                                                                   ; NAME/KEY: CDS
; LOCATION: 1 ...
US-08-578-634C-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-430-010-2
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                380 CACATTCTTCTGAATGACATCAGGGATCCCGCCGTCTCACTGGCGATAACGGGCACGCC 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Zur Hausen
APPLICANT: Irene Leigh
APPLICANT: Harald Zur Hausen
TITLE OF INVENTION: DNA CODING FOR A PEPTIDE OF A PAPILLOMA
TITLE OF INVENTION: VIRUS MAIN CAPSIDE PROTEIN AND USE THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                    Length 25165;
                                                                                                                                                                                                                                                                                                                                                                                                      2.5%; Score 29; DB 4; Length 251
58.8%; Pred. No. 1.2e+02;
tive 0; Mismatches 35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                           NAME: Seay, Nicholas J.
REGISTRATION NUMBER: 27386
REFERENCE/DOCKET NUMBER: 960296.95017
TELECOMMUNICATION INFORMATION:
TELEFRAX: (608) 251-5000
TELEFRAX: (608) 251-9166
INFORMATION FOR SEQ ID NO: 39:
EROTH: 25165
                                                                                                                                                                                                                                          TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
SEQUENCE DESCRIPTION: SEQ ID NO: 39:
US-09-453-702B-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4155 GATGATTTGCGCCTGAGCATGTTCC 4131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds LLP
STREET: 1155 Avenue of The Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              440 GGAGACTGACGCTTCAGCCAGTACC 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/08/578,634C FILING DATE: 26-JAN-1996 CLASSIFICATION: 435 CLASSIFICATION DATA: APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 2, Application US/08578634C
Patent No. 6025163
GENERAL INFORMATION:
APPLICANT: Vladimir Shamanin
APPLICANT: Ethel Michele De Villiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Abrams, Samuel B. REGISTRATION NUMBER: 30,605
REFERENCE/DEOKET NUMBER: 8484-007
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy Disk
COMPUTER: IBM PC COMPATIBLE
OPPERATING SYSTEM: PC-DOS/MS-DOS
                                ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (650) 493-4935
(650)493-5556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEX: 66141 PENNIE INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New York
New York
XY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
Matches 50; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 41
US-08-578-634C-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     å
```

```
2.4%; Score 28.6; DE 47.1%; Pred. No. 43; tive 0; Mismatches
              ATTORNEY AGENT INFORMATION:
NAME: Seay, Nicholas J
REGISTRATION NUMBER: 27,386
REPERENCE/DOCKET NUMBER: 960296.93511
TELECOMMUNICATION INFORMATION:
TELEPHONE: 608-251-5000
TELEFAX: 608-251-506
INFORMATION FOR SEQ ID NO: 5:
                                                                                                                                                                                                                                                       TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) ORIGINAL SOURCE: ORGANISM: Rhodobacter sphaeroides STRAIN: 2.4.1 IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08/922,182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 South Pinckney Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 5, Application US/08922182 Patent No. 5834300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quarles & Brady
                                                                                                                                                                                                 LENGTH: 2563 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 47.15
Matches 88; Conservative
                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: CDS
LOCATION: 2113..2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: Quarles &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1029 TCGCCC 1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              406 TCCCGCC 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                              pUI8017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: Madison
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      53703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 45
US-08-922-182-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                CLONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                 910 ACAGATAATICAGGGAAAACGTICTGGTCTTACGGGTGATGTAGGTTTTTTGTCTGACAA 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           876 ATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAACGTTCTG 935
                                                                                                                                                        240 ACTGGTAAATACTGTAATAGAAGATGGAGATATGGTGGATATAGGTTTTGGAAATATAAA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                343 ATCATGGATTAATTAGGCTCAATAGATTTGTCTCGCGAATTAGTCCGAGATTATGGATGA 402
                                                                                Gaps
                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 4; Length 1730;
                                         Length 668;
                                     Score 28.6; DB 4; Length 61
Pred. No. 19;
0; Mismatches 39; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FORMALDEHYDE
                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: Yu, Su-May
APPLICANT: Yu, Su-May
TITLEANT: CHOOMOTER
TITLE OF INVENTION: PLANT SEBDLING AND EMBRYO PROMOTER
FILE REFERENCE: 08919-047001
CURRENT APPLICATION NUMBER: US/09/575,574
CURRENT FILIG DATE: 2000-05-22
NUMBER OF SEQ ID NOS: 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       936 GTCTTACGGGTGATGTAGGTTTTTTGTCTGACAATAGTG 974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTTTTATTGATAGTCTACGTTTAATATTATTAGTG 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/608,241
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Donohue, Timothy J
APPLICANT: Barber, Robert D
APPLICANT: Wilthuh, Vernon
TITLE OF INVENTION: MICROBIAL SYSTEM FOR FORMA
TITLE OF INVENTION: SENSING AND REMEDIATION
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: Quarles & Brady
STREET: 1 South Pinckney Street
                                                                                                                                                                                               970 TAGTGAAGCGGTGACAGCATATCAGACGGCT 1000
                                                                                                                                                                                                                      300 TAATAAAACCCTGTCAGCAAATAAGTCAGAT 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 28.6; DB; Pred. No. 34; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 5 LENGTH: 1730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 5, Application US/08608241
Patent No. 5747328
                                                                                                                                                                                                                                                                                                REGULT 43
US-00-575-574-5
Sequence 5, Application US/09575574
; Patent No. 6376750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ch 2.4%;
1 Similarity 55.6%;
55; Conservative
                                   Query Match
Best Local Similarity 57.1:
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; TYPE: DNA
; ORGANISM: Oryza sativa
US-09-575-574-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Donohue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Madison
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              53703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-608-241-5
US-09-430-010-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                        셤
                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                     ð
                                                                                                                                                                                                 ð
```

```
969 AAGGACCAIGCGCCACGCGAGCGAGCGAGGCGTICCTCTGATCGATCCAGCGA 1028
                                                                                                                                                                                                                      226 CAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATATCTTCTGGCGCTGG 285
                                                                                                                                                                                                                                                             286 CTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                      346 CAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGA 405
                                                                                                                                                                                                                                                                                                                                                                                 909 CTACCCGCCGGGAGGAGCGATGAGGCCGGGCCGGGGCGGTGACCTGCGTCCAGTGGGGG
                                                                                                                                                                      Gaps
                                                                                                                                                                   ö
                                                                                                             DB 1; Length 2563;
SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: Donohue, Timothy J
APPLICANT: Barber, Robert D
APPLICANT: Witchuhn, Vernon
TITLE OF INVENTION: MICROBIAL SYSTEM FOR FOI
TITLE OF INVENTION: SENSING AND REMEDIATION
```

968

```
GENERAL INCOMOSTION:
APPLICANT: Yu, Su-May
APPLICANT: Yu, Su-May
APPLICANT: Yu, Su-May
TILLE OF INCOMOSTER
FILE REFERENCE: 08919-047001
CURRENT APPLICATION NUMBER: US/09/575,574
CURRENT FILIG DATE: 2000-05-22
NUMBER OF SEQ ID NOS: 10
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 3
LENGTH: 3572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 3, Application US/09575574
Patent No. 6376750
SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA ORGANISM: Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1029 TCCGCCC 1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCCGCC 412
                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLONE: pUI8017
                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY: line
MOLECULE TYPE: L
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IMMEDIATE SOURCE:
                                                                                                                                 FILING DATE:
                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-575-574-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-919-953-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S:
Matches 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             226 CAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCAATATCTTCTCTGGCGCTGG 285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        346 CAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGA 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              849 CGAGCAGCTGAACGGGAATGCATGTATGCATGTGAACCAGACCATGACCGGGGTCGCGAT 908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 286 CIGCCAICAICCGGAAGCGIICCGGICGGGAIAAAAAICGCGCAGIGCGCCGGICCAIG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     909 craccecegeadeadeareareadecedecedecegecegereacerecereceareages 968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 2; Length 2563;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION: 2113..2400
OTHER INFORMATION: /Product- "Partial Sensor Coding OTHER INFORMATION: Sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: Donohue, Timothy J
APPLICANT: Barber, Robert D
APPLICANT: Withthun Vernon
TITLE OF INVENTION: MICROBIAL SYSTEM FOR FOI
TITLE OF INVENTION: SENSING AND REMEDIATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 28.6; DB
Pred. No. 43;
0; Mismatches
                                                                          ATTORNEY/AGENT INFORMATION:
NAME: Seay, Nicholas J
REGISTRATION NUMBER: 27,386
REFERICE/COCKET UNBER: 960296.93511
TELECOMUNICATION INFORMATION:
TELEPHONE: 608-251-500
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHRARCTERISTICS:
LENGTH: 2563 base pairs
                                                                                                                                                                                                                                                                                                                                                               Rhodobacter sphaeroides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS: 7
STREET: 1 South Pinckney Street
STREET: 1 South Pinckney Street
 CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/608,241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 5, Application US/08919953
Patent No. 5837481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 2.4%;
Best Local Similarity 47.1%;
Matches 88; Conservative
                                                                                                                                                                                                                                                                     nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1029 TCCGCCC 1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       406 TCCCGCC 412
                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                      PUI8017
                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: DORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                           STRAIN: 2.4.1
IMMEDIATE SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Madison
                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: CDS
                                                                                                                                                                                                                                                                                       STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      53703
                                                                                                                                                                                                                                                                                                                                                               ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE: V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-922-182-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
```

```
226 CAATGATCTGTGCGGTTCTGTTAATATCAAACCGGTACTCAATATCTTCTCTGGCGCTGG 285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   286 CIGCCATCATCCGGAAGCGTTCCGGGTCGGGATAAAAATCGCGCAGTGCGCCCGGTCCATG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                346 CAGACACCACCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGA 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2563;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: 2113..2400
OTHER INFORMATION: /product- "Partial Sensor Coding
OTHER INFORMATION: Sequence"
                   PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 28.6; DB 2;
Pred. No. 43;
0; Mismatches 99;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Rhodobacter sphaeroides STRAIN: 2.4.1
                                                           US/08/919,953
PC-DOS/MS-DOS
                                                                                                     CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/608,241
                                                                                                                                                                                                                                           REPERENCE/DOCKET NUMBER: 2/902
REPERENCE/DOCKET NUMBER: 9602
TELECOMMUNICATION INFORMATION:
TELEPHONE: 608-251-9106
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 2563 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: Seay, Nicholas J
REGISTRATION NUMBER: 27,386
                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.4%;
Local Similarity 47.1%;
les 88; Conservative (
```

```
LENGTH: 1002 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-828-323-13/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SCFIRE SEQ ID NO 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-828-323-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                   876 ATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAACGTTCTG 935
                                                                                                                                                          343 ATCATGGATTAATTAGGCTCAATAGATTTGTCTCGCGAATTAGTCCGAGATTATGGATGA 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               298 cccccrcaecaaccaacaaccaccaccracaacaacaacaaccaarcaarcraaaraa 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: MUKUMOTO, Fujio
APPLICANT: NISHIO, Shoichi
APPLICANT: ANIMARU, Jiro
APPLICANT: MITSUDA, Satoshi
TITLE OF INVENTION: DNA Fragments Containing Biotin Biosynthetase Gene and
TITLE OF INVENTION: Use of the Same
                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                              ö
                                         DB 4; Length 3572;
                                   Ouery Match 2.4%; Score 28.6; DB 4; Length 3 Best Local Similarity 55.6%; Pred. No. 52; Matches 55; Conservative 0; Mismatches 44; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 28.4; DB 4; Length 6
Pred. No. 22;
0; Mismatches 31; Indels
                                                                                                                                                                                                  936 GTCTTACGGGTGATGTAGGTTTTTTTGTCTGACAATAGTG 974
                                                                                                                                                                                                                                     403 GTTTTATTGATAGTCTACGTTTAATATTTATTAGTG 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILE REFERENCE: 0152-0400P
CURRENT APPLICATION NUMBER: US/09/180,109A
CURRENT FILING DATE: 1998-12-03
PRIOR APPLICATION NUMBER: 09/047838 JAPAN
PRIOR FILING DATE: 1997-03-03
NUMBER OF SEQ ID NOS: 52
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 17
LENGTH: 621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 13, Application US/08279058B
Patent No. 5668004
GENERAL INFORMATION:
APPLICANT: Michael E. O'Donnell
TITLE OF INVENTION: DNA POLYMERASE III
TITLE OF INVENTION: HOLOENZYME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; FEATURE:
; OTHER INFORMATION: Strain = JCM7511
; NAME/KEY: CDS
; LOCATION: (1)..(618)
US-09-180-109A-17
                                                                                                                                                                                                                                                                                                                                      Sequence 17, Application US/09180109A Patent No. 6410293 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: DNA ORGANISM: Sphingomonas paucimobilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 60
CORRESPONDENCE ADDRESS:
ADDRESSE: Talwark & Associates
STREET: 25 Skytop Drive
CITY: Trumbull
STATE: Connecticut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        415 TCTCACTGGCGATAACGG 432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 49
US-08-279-058B-13/c
                                                                                                                                                                                                                                                                                                   RESULT 48'
US-09-180-109A-17/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              06611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
US-09-575-574-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
```

```
635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        313 GGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCG 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                634 ccreccagrrarcreccreaaacaaceccagrecececececeaeceaaceecrraage 575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     694 GCGAATACCAATGCCCGATGGCACGCTATATGCCAACGCCTGACAATGTTTCACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                313 GGGATAAAAATCGCGCCGTCCGTCCATGCAGACACATCCCCCACACGGGTAACAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         694 GCGAATACCAATCGCCCGATGGCACGCTATATGCCAACGCCTGACACAATGTTTCACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 13, Application US/08828323A

Patent No. 6413753

GENERAL INFORMATION:
APPLICANT: O'Donnell, Michael
TITLE OF INVENTION: DNA POLYMERASE III HOLOENZYME
FILE REFERENCE: 19603/10214
CURRENT APPLICATION UNDABER: US/08/828,323A

CURRENT FILING DATE: 1997-03-28

NUMBER OF SEQ ID NOS: 60

SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 2.4%; Score 28.4; DB Best Local Similarity 50.0%; Pred. No. 29; Matches 71; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 28.4; DE
Pred. No. 29;
0; Mismatches
                                           CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/279,058B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            574 GCAATGCGGCAAGTAATGCATC 553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             433 GCACGCCGGAGACTGACGCTTC 454
                                                                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: George M. Yahwak
REGISTRATION NUMBER: 26,824
REFERENCE/DOCKET NUMBER: CRF I
TELECOMMUNICATION INFORMATION:
TELEFAX: (203)268-1951
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
OPERATING SYSTEM: MS-DOS
SOFTWARE: Microsoft Word 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 2.4%;
Best Local Similarity 50.0%;
Matches 71; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA
ORGANISM: Escherichia coli
                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
STRANDEDNESS: single
                                                                                              FILING DATE:
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                             ; MOLECULE TYPE: DNA
US-08-279-058B-13
```

574 GCAATGCGGCAAGTAATGCATC 553

Search completed: June 19, 2003, 03:36:30 Job time : 73.8861 secs

Perfect score:

Sequence:

OM nucleic

Run on:

Scoring table:

Total number

Searched:

08 08

Minimum Maximum

Database

```
Sequence 3, Appl Sequence 522, App Sequence 522, App Sequence 362, App Sequence 367, App Sequence 967, App Sequence 9170, App Sequence 9170, App Sequence 114, App Sequence 114, App Sequence 114, App Sequence 1134, App Sequence 1146, App Sequ
                                                      811
11649
11649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14462
32192
32192
32192
32192
32192
34337
  00000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1695, Ap Sequence 6118, Ap Sequence 6111, Ap Sequence 1771, Ap Sequence 1, Appl1 Sequence 1, Appl1 Sequence 1, Appl1 Sequence 1, Appl1 Sequence 1730, Ap Sequence 66, Appl Sequence 677, App Sequence 8152, App Sequence 8152, App Sequence 8162, App Sequence 816, App Sequence 8162, App Sequence 816, App Sequence 812, App Se
                                                                                                                                ; Search time 298.567 Seconds
(without alignments)
5804.490 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                    1 ctgcaggagatggaaaaaaa......ttttacttttttctctgcag 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Published_Applications_NA:*

1: /cgn2_6/ptodata/1/pubpna/USO7_PUBCOMB.seq:*

2: /cgn2_6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*

3: /cgn2_6/ptodata/1/pubpna/USO6_NEW_PUB.seq:*

4: /cgn2_6/ptodata/1/pubpna/USO6_NEW_PUB.seq:*

5: /cgn2_6/ptodata/1/pubpna/USO6_NEW_PUB.seq:*

6: /cgn2_6/ptodata/1/pubpna/USO8_NEW_PUB.seq:*

7: /cgn2_6/ptodata/1/pubpna/USO8_NEW_PUB.seq:*

8: /cgn2_6/ptodata/1/pubpna/USO8_NEW_PUB.seq:*

9: /cgn2_6/ptodata/1/pubpna/USO8_NEW_PUB.seq:*

9: /cgn2_6/ptodata/1/pubpna/USO9_NEW_PUB.seq:*

10: /cgn2_6/ptodata/1/pubpna/USO9_NEW_PUB.seq:*

10: /cgn2_6/ptodata/1/pubpna/USO9_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /cgn2_6/ptcdata/1/pubpna/US10_NEW_PUB.seq:*
/cgn2_6/ptcdata/1/pubpna/US10_PUBCOMB.seq:*
/cgn2_6/ptcdata/1/pubpna/US60_NEW_PUB.seq:*
/cgn2_6/ptcdata/1/pubpna/US60_NEW_PUB.seq:*
                GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0. 0S-09-974-300-1695

0. 0S-09-974-300-6118

0. 0S-09-974-300-1771

0. 0S-09-974-300-1771

0. 0S-10-270-875-1

0. 0S-10-270-878-1

0. 0S-10-270-878-1

0. 0S-10-270-878-1

0. 0S-10-270-85-1

0. 0S-09-974-300-1730

0. 0S-09-974-300-1702

0. 0S-09-918-955-564A-66

0. 0S-09-918-955-564A-66

0. 0S-09-918-995-8152

0. 0S-09-918-995-8152

0. 0S-09-918-995-8152

0. 0S-09-918-955-564A-66

0. 0S-09-918-955-564A-66

0. 0S-09-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918-955-918
                                                                                                                                                                                                                                                                                                                                                                                    hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                 1042519 seqs, 733713590 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 150 summaries
                                                                                           nucleic search, using sw model
                                                                                                                                  June 18, 2003, 04:53:09
                                                                                                                                                                                                                                                                                        IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                          seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB
                                                                                                                                                                                                           US-09-674-277-2
1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               %
Query
Match Length D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1135
783
783
783
1229
1229908
129908
129908
129908
129908
1427
741
741
135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   oţ
```

0000000000

Score

36.6 36.2 36.2 36.2 35.4 35.4

O

34.8 34.8 34.8

ó

```
977 ATATCTCCGACATCGACCAAGTAACCGGATACTCCGTTTTTTGATCACCTCGGGAATCCCC 918
                                                                                                                                                                                                                                                                                                                                                                                             CTGTCTTGTTTGCCAAGGAAAGAACGTCGTCTTTTAATCCGAGCTGTCTGACAAGCTGG 738
                                                                                                                                                                                                                                                                                                                                                                                                                                             AACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCT 530
                                                                                                                                                                                                                                                                                                                                                                           CCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               351 ACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCG
                                                                                                                                                                                                                                       4.1%; Score 49; DB 10; Length 1135; 50.2%; Pred. No. 6e-06; ariive 0; Mismatches 120; Indels
CURRENT APPLICATION NUMBER: US/09/974,300
CURRENT FILING DATE: 2001-10-05
PRIOR APPLICATION NUMBER: 09/680,598
PRIOR FILING DATE: 2000-10-06
PRIOR FILING DATE: 2001-03-27
NUMBER OF SEQ ID NOS: 8481
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 1695
LENGTH: 1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 6118, Application US/09974300 Patent No. US20020146721A1
                                                                                                                                                                            TYPE: DNA ORGANISM: Bacillus licheniformis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Bacillus clausii
                                                                                                                                                                                                                                                             Best Local Similarity 50.2
Matches 121, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09-974-300-6118/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C 591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   c 737
                                                                                                                                                                                                             US-09-974-300-1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     591
                                                                                                                                                                                                                                                                                                                                                                                 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   797
                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE
                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                             Sequence 66, Appl Sequence 11, Appl Sequence 124, Appl Sequence 2185, App Sequence 2287, App Sequence 2287, App Sequence 2287, App Sequence 2187, App Sequence 574, App Sequence 574, App Sequence 674, App Sequence 674, App Sequence 612, Appl Sequence 612, Appl Sequence 613, Appl Sequence 260, App Sequence 260, App Sequence 260, App Sequence 60, Appl Sequence 60, Appl Sequence 61, Appl Sequence 51, Appl
     Sequence 136, App
Sequence 234, App
Sequence 2, Appl
Sequence 3, Appli
Sequence 4, Appli
Sequence 3049, App
Sequence 100, App
Sequence 101, Appl
Sequence 101, Appl
Sequence 107, Appl
Sequence 107, Appl
Sequence 17, Appl
Sequence 17, Appl
Sequence 17, Appl
Sequence 17, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                       0. 05-09-912-020-136

0. 05-09-925-587A-2

0. 05-09-925-587A-2

0. 05-09-925-587A-3

0. 05-09-925-587A-3

0. 05-09-925-587A-3

0. 05-09-925-587A-3

0. 05-09-925-587A-3

0. 05-09-926-587A-3

0. 05-09-926-587A-3

0. 05-09-926-867-3049

0. 05-09-978-866-927

0. 05-09-978-846-927

0. 05-09-938-842A-3954

0. 05-09-938-842A-3954

0. 05-09-938-842A-3954

0. 05-09-938-842A-3954

0. 05-09-938-8642-303

0. 05-09-938-864-303

0. 05-09-938-864-303

0. 05-09-938-864-303

0. 05-09-764-869-2287

0. 05-09-764-869-2287

0. 05-09-764-869-2287

0. 05-09-764-869-2287

0. 05-09-764-869-2287

0. 05-09-784-644-574

0. 05-09-784-644-574

0. 05-09-784-644-560

05-10-184-644-560

05-10-184-644-560

05-10-184-123-155-12

0. 05-09-781-28-28

0. 05-09-781-28-28

0. 05-09-781-28-28

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3

0. 05-09-138-28-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALIGNMENTS
                                                                                                                                                                                                                                                                                    2818
8739
8739
12988
12988
18036
18036
491
875
882
                                                                                                                                                                                                              1006
2000
2311
2394
            ပပ
                                                                                                                                                                                                                      ပပ
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           354 TCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCGCCC 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 783;
GENERAL INCRAFILOR:

APPLICANT: Berka, Randy M.
APPLICANT: Clausen, ID Groth
TITLE OF INVENTION: Methods For Monitoring Multiple Gene
TITLE OF INVENTION: Expression
FILE REFERENCE: 10085.500-US
CURRENT PELLING DATE: 2001-10-05
PRIOR FILING DATE: 2001-10-06
PRIOR FILING DATE: 2000-10-06
PRIOR FILING DATE: 2000-10-06
PRIOR FILING DATE: 2000-10-06
PRIOR FILING DATE: 2001-06

PRIOR FILING DATE: 2001-06

FRIOR FILING DATE: 2001-06

SPRIOR FILING DATE: 2001-06

FRIOR FILING DATE: 2001-06

SPRIOR FILING DATE: 2001-03-27

NUMBER OF SEQ ID NOS: 8481

LENGTHAR: 783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 4.1%; Score 48.6; DB 10; Length Best Local Similarity 49.8%; Pred. No. 6.5e-06; Matches 123; Conservative 0; Mismatches 124; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: (1)...(783)
CTHER INFORMATION: n = A,T,C or G
US-09-974-300-6118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _
_
_
_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature LOCATION: (1)...(783)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

Sequence 1695, Application US/09974300
Patent No. US20020146721A1
GENERAL INFORMATION:
APPLICANT: BERKA, Randy M.
APPLICANT: Clausen, ID Groth
TITLE OF INVENTION: Methods For Monitoring Multiple Gene
TITLE OF INVENTION: Expression
FILE REFERENCE: 10085.500-US

RESULT 1 US-09-974-300-1695/c

m

q

å

g ò g ò

å

```
352 CATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCGC 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               458 CAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGC 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 129908;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Gudmundur O. Hreggyldsson
APPLICANT: Gudmundur O. Hreggyldsson
APPLICANT: Gudmundur O. Hreggyldsson
APPLICANT: Anthor Aevarsson
APPLICANT: Anthor Aevarsson
APPLICANT: Anthor Aevarsson
ITILE OF INVENTION: Bacteriophage RM378 of a Thermophillor
PRIOR FILING DATE: 2002-10-11
PRIOR PILICATION NUMBER: Go/137,120
PRIOR APPLICATION NUMBER: Go/137,120
PRIOR APPLICATION NUMBER: 1999-06-02
NUMBER OF SEQ ID NOS: 73
SOFTWARE: FastsEQ for Windows Version 4.0
SEQ ID NO 1
LENGTH: 129908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      412 CCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCA 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    44; Indels
                                                                                                                                                                                                                                                                                                                                                                                    Score 41.6; DB lu;
Pred. No. 0.0024;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. 0.11;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
FILE REFERENCE: 10085.500-US
CURRENT APPLICATION NUMBER: US/09/974,300
CURRENT FILING DATE: 2001-10-05
PRIOR APPLICATION NUMBER: 09/680,598
PRIOR APPLICATION NUMBER: 00/279,526
PRIOR PELING DATE: 2000-10-06
PRIOR FILING DATE: 2001-03-27
NUMBER OF SEQ ID NOS: 8481
SOFTWARE: FRSESEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.4%; Score 40.6; 60.4%; Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1, Application US/10270875
Publication No. US20030082741A1
GENERAL INFORMATION:
APPLICANT: Sigridur Hjorleifsdotter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1, Application US/10270878 Publication No. US20030082790A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                            TYPE: DNA ORGANISM: Bacillus licheniformis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TYPE: DNA
; ORGANISM: Bacterlophage RM378
US-10-270-875-1
                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 3.5%;
Best Local Similarity 62.5%;
Matches 65; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 60.49
Matches 67; Conservative
                                                                                                                                                                                                                                                                                                                                                   US-09-974-300-1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-270-878-1/c
                                                                                                                                                                                                                                             SEQ ID NO 1771
LENGTH: 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   354 TCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCCGCCC 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         571 ATTITGTCGCGATCACGTACCCCGCATGCCATCGCTTCAAGCGCCACTAAACCAAAG 512
                                                                                                                                                                                                                                                                                                                  451 TTTTGGTTGCCTAGCATAAGGACATCGTTTGTCAAGCCGTTTTCTTCCACAAACTGCCTC 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    573 ATTITGICGCGATCACAGGTACCCCGCATGCCATCACCAAAG 514
  631 TICCCAAGGGGGCATAAATAACCAGTTACTTCGTCTTCAACAACTTCCGGGATGCCACCA 572
                                                       GTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAAC 473
                                                                                                                                                          474 GCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGG 533
                                                                                                                                                                                                              511 CTTTCTTTTTCGCTTAACAACAGCATTAAATCGCTCATAGACAACAATTCAGCAACATGC 452
                                                                                                                                                                                                                                                                3.9%; Score 46.2; DB 10; Length 783; ilarity 59.5%; Pred. No. 4.5e-05; Conservative 0; Mismatches 53; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Berka, Randy M.
APPLICANT: Berka, Randy M.
TITLE OF INVENTION: Methods For Monitoring Multiple Gene
TITLE OF INVENTION: Berthods For Monitoring Multiple Gene
TITLE OF INVENTION: Berthods For Monitoring Multiple Gene
TITLE OF INVENTION: Expression
FILE REFERENCE: 10085.500-US
CURRENT APPLICATION NUMBER: 08/080,598
PRIOR FILING DATE: 2001-10-06
PRIOR FILING DATE: 2000-10-06
PRIOR FILING DATE: 2001-03-27
NUMBER OF SEQ ID NOS: 8481
SOFTWARE: FESTERQ for Windows Version 4.0
SEQ ID NO 6111
LENGTH: 783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1771, Application US/09974300
Patent No. US20020146721A1
GENERAL INFORMATION:
APPLICANT: Berka, Randy M.
APPLICANT: Clausen, 1b Groth
TITLE OF INVENTION: Methods For Monitoring Multiple Gene
TITLE OF INVENTION: Expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 6111, Application US/09974300 Patent No. US20020146721A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; FEATURE:
; NAME/KEY: misc_feature
LCCATION: (1)...(783)
; OTHER INFORMATION: n = A,T,C or G
US-09-974-300-6111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA ORGANISM: Bacillus clausii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  474 GCTTCATTTTC 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    513 CTTTCTTTTC 503
                                                                                                                                                                                                                                                                                                                                                                         594 AGACGTG 600
                                                                                                                                                                                                                                                                                                                                                                                                                           391 GCAATTG 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity
Matches 78; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-974-300-1771/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
```

윱

ö

ò

```
SOFTWARE: FastSE
SEQ ID NO 1
LENGTH: 129908
                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 129908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-270-859-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10181 ATCTGCAATACCACCGTCATAGTAGCAACCACGGGGGTCCACACGCGGGGCTCAAG 10122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10181 ATCTGCAATACCACCGTCATAGTAGCAACCACGGGGCTCCACACAGGGACGCCTCAAG 10122
                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               458 CAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGC 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             458 CAGTACCATACCAAAGGCTTCATTTTCCGAAGGCATGACCACCACACTGGC 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 129908;
                                                                                                                                                                                                                                                                                                                                                                                         Score 40.6; DB 9; Length 129908;
Pred. No. 0.11;
0; Mismatches 44; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Sigridur Hjorleifsdotter
APPLICANT: Guadudur O. Hreggvidsson
APPLICANT: Guadudur O. Hreggvidsson
APPLICANT: Olafur H. Fridjonsson
APPLICANT: Arnthor Aevarsson
APPLICANT: Arnthor Aevarsson
APPLICANT: Arnthor Aevarsson
TITLE OF INVENTION: Bacteriophage RM378 of a Thermophilic
TITLE OF INVENTION: Host Corganism
FILE REFERENCE: 2739.1001-001
CURRENT FILING DATE: 2002-10-11
PRIOR APPLICATION NUMBER: 0S/09/585,858
PRIOR FILING DATE: 2000-12-18
PRIOR FILING DATE: 1999-06-02
NUMBER OF SEQ ID NOS: 73
CORMANDER OF SEQ ID NOS: 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44; Indels
                                                    APPLICANT: Jakob K. Kristjansson
TITLE OF INVENTION: Bacteriophage RM378 of a Thermophilic
TITLE OF INVENTION: Bacteriophage RM378 of a Thermophilic
TITLE OF INVENTION: Host Organism
FILE REFERENCE: 2739.1001-001
CURRENT APPLICATION NUMBER: US/10/270,878
CURRENT FILING DATE: 2002-10-11
RNIABER OF SEQ ID NOS: 73
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.11:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 40.6;
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: FastSEQ for Windows Version 4.0
Gudmundur O. Hreggvidsson
Olafur H. Fridjonsson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1, Application US/10270786 Publication No. US20030087392A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; ORGANISM: Bacter1ophage RM378
US-10-270-786-1
                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Bacteriophage RM378 US-10-270-878-1
                                                                                                                                                                                                                                                                                                                                                                                               Query Match 3.4%;
Best Local Similarity 60.4%;
Matches 67; Conservative
                                       Arnthor Aevarsson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO 1
LENGTH: 129908
                                                                                                                                                                                                                                                                                             LENGTH: 129908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
                                                                                                                                                                                                                                                                                                              TYPE: DNA
                                                                                                                                                                                                                                                                         SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
```

```
10181 ATCTGCAATACCACCCGTCATAGTAGCAACCACCGGGCTCCACACAGCGACGCCTCAAG 10122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          458 CAGIACCAIACCAAACGCIICAIIIICCGAAGGCAIGACCACACACIGGC 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 129908;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-470-4839-17C
US-10-470-4839-17C
Sequence 1, Application US/10270859
Publication No. US20030092134A1
GENERAL INFORMATION:
APPLICANT: Sigridur Hjorleifsdotter
APPLICANT: Qladmudur O. Hreggyidsson
APPLICANT: Anthor Aevarsson
APPLICANT: Jakob K. Kristjansson
TITLE OF INVENTION: Bacteriophage RM378 of a Thermophilic
TITLE OF INVENTION: Bacteriophage RM378 of a Thermophilic
TITLE FEFRENCE: 2739.1001-001
CURRENT FILING DATE: 2002-10-11
PRIOR APPLICATION NUMBER: US/09/585,858
PRIOR FILING DATE: 1999-06-02
NUMBER OF SEQ ID NOS: 73
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                    APPLICANT: ATTICATION AND APPLICANT: Jakob K. Kristjansson APPLICANT: Jakob K. Kristjansson TITLE OF INVENTION: Bacteriophage RM378 of a Thermophilic TITLE OF INVENTION: Host Organism FILE REFERENCE: 2739.1001-001 CURRENT APPLICATION NUMBER: US/10/270,710 CURRENT PLING DATE: 2002-10-11 PRIOR FILING DATE: 2002-12-18 PRIOR FILING DATE: 2000-12-18 PRIOR FILING DATE: 1999-06-02 NUMBER OF SEQ ID NOS: 73 SOFTWARE: FASTERQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 40.6; DB 9;
Pred. No. 0.11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 40.6; DB Pred. No. 0.11; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match
3.4%; Score 40.6; DE
Best Local Similarity 60.4%; Pred. No. 0.11;
Matches 67; Conservative 0; Mismatches
                                                                                                  Gudmundur O. Hreggvidsson
Olafur H. Fridjonsson
                                                                               APPLICANT: Sigridur Hjorleifsdotter
Sequence 1, Application US/10270710 Publication No. US20030092128A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.4%;
Best Local Similarity 60.4%;
Matches 67; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Bacteriophage RM378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; TYPE: DNA
; ORGANISM: Bacteriophage RM378
US-10-270-710-1
```

```
1123 A 1123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300 R 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                    å
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            926 TTCTGTATAAAATCTTTCAGGCCGCGGAGTCTGCCCCGATAACAGGCGTCCCGCAGGCG 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  447 GACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACACTG 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        387 ITCTGAATGACATCAGGGATCCCGCCGTCTCACTGGCGATAACGGGCACGCCGGAGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 37; DB 10; Length 1108;
Pred. No. 0.09;
0; Mismatches 60; Indels 0; Gaps
                                                         458 CAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGC 508
                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Berka, Randy M.
APPLICANT: Clausen, 1D Groth
TITLE OF INVENTION: Methods For Monitoring Multiple Gene
TITLE OF INVENTION: Expression
FILE REFERENCE: 10085.500-00
CURRENT APPLICATION NUMBER: US/09/974,300
CURRENT FILING DATE: 2001-10-05
FRIOR FILING DATE: 2000-10-06
FRIOR FILING DATE: 2001-03-27
FRIOR FILING DATE: 2001-03-27
NUMBER OF SEQ ID NOS: 8481
SOFTWARE: FASISEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Sprecher, Cindy A.
APPLICANT: No. US20020137677Alak, Julia E.
APPLICANT: West, James W.
APPLICANT: Presnell, Scott R.
APPLICANT: Holly, Richard D.
APPLICANT: Nelson, Andrew J.
TITLE OF INVENTION: SOLUBLE ZALPHAll CYTOKINE RECEPTORS
FILE REFERENCE: 00-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/825,561A
CURRENT FILING DATE: 2000-04-05
PRIOR APPLICATION NUMBER: US 60/194,731
PRIOR FILING DATE: 2000-04-05
PRIOR APPLICATION NUMBER: US 60/222,121
PRIOR FILING DATE: 2000-07-28
NUMBER OF SEQ ID NOS: 86
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 7
LENGTH: 654
                                                                                                                                                           Sequence 1730, Application US/09974300 Patent No. US20020146721A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 7, Application US/09825561A Patent No. US20020137677A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; TYPE: DNA
; ORGANISM: Bacillus licheniformis
US-09-974-300-1730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 654
TYPE: DNA
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 3.1%;
Best Local Similarity 54.9%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      507 GCAATCCGGTAGA 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        806 GAGCTCGCATAGA 794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION
                                                                                                                                     us-09-974-300-1730/c
                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ ID NO 1730
LENGTH: 1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-825-561A-7
å
                                 ò
                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
```

```
APPLICANT: Penn, Sharron G.
APPLICANT: Rank, David R.
APPLICANT: Hanzel, David R.
APPLICANT: Hanzel, David K.
APPLICANT: Chen, Wensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL PO
TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILLING DATE: 2001-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1003 GTCCTGCTATATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCC 1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1063 CGATAATCCGTCGAAGTCTGAGGATGGAAGGAGGTGAAGGCTGTTCCTGAAAGGAATAA 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    943 GGGTGATGTAGGTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCA 1002
                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                   942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240 NGAYCARWSNGGNAAYTAYWSNCARGARTGYGGNWSNTTYYTNYTNGCNGARWSNATHAA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                             60 GIGGAAYYINCAYCCNWSNACNYINACNYINACNIGGCARGAYCARIAYGARGARYINAA
                                                                                                                                                                                                                                                                                                                                                                                                            883 GTGAGATAGGCACAACAATGAAATCACAGATAATTCAGGGAAAACGTTCTGGTCTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120 RGAYGARGCNACNWSNTGYWSNYTNCAYMGNWSNGCNCAYAAYGCNACNCAYGCNACNTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180 YACNTGYCAYATGGAYGTNTTYCAYTTYATGGCNGAYGAYATHTTYWSNGTNAAYATHAC
                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                      H
FEATURE:

OTHER INFORMATION: Degenerate polynucleotide sequence of soluble
OTHER INFORMATION: zalphall Receptor polypeptide as shown in SEQ 1
OTHER INFORMATION: NO:6
NAME/KEY: misc_feature
LOCATION: (1)...(654)
COTHER INFORMATION: n = A,T,C or G
                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                        Length 654;
                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                     Query Match 3.1%; Score 36.6; DB 10; Best Local Similarity 30.7%; Pred. No. 0.089; Matches 74; Conservative 35; Mismatches 132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DR FILING DATE: 2000-08-03
DR APPLICATION UNDBER: GB 24263.6
DR FILING DATE: 2000-10-04
DR FILING DATE: 2000-09-27
DR FILING DATE: 2001-09-27
DR PELING DATE: 2001-01-30
DR PELING DATE: 2001-01-30
DR PELING DATE: 2001-01-30
PRILING DATE: 2001-01-30
PRILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ILING DATE: 2001-01-30
PPLICATION NUMBER: PCT/US01/00669
ILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: US 60/180,312 PRIOR FILING DATE: 2000-02-04 PRIOR APPLICATION NUMBER: US 60/207,456 PRIOR FILING DATE: 2000-05-26 PRIOR APPLICATION NUMBER: US 09/632,366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: PCT/US01/00664
FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: PCT/US01/00663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 14748, Application US/09864761
Patent No. US20020048763A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-864-761-14748/C
```

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         임
                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                   ð
                                                                                                                                       셤
                                                                                                                                                                                ð
                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1113 AAAGGAATAAAAGTGACATCATGCCCTCTTTTTCTGGCTTCCGGAGCAATTTTACTTTT 1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE: OTHER INFORMATION: Degenerate polynucleotide sequence of SEQ ID NO:69 NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 56.2%; Pred. No. 0.12;
Matches 68; Conservative 0; Mismatches 53; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: EXPRESSED IN PLACENTA, SIGNAL = 0.73
OTHER INFORMATION: EXPRESSED IN ADULT LIVER, SIGNAL = 0.65
OTHER INFORMATION: EXPRESSED IN FETAL LIVER, GIGNAL = 0.46
OTHER INFORMATION: EXPRESSED IN BONE MARROW, SIGNAL = 0.66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RECEPTORS
PRIOR FILING DATE: 2001-01-30
PRIOR APPLICATION NUMBER: PCT/US01/00661
PRIOR FILING DATE: 2001-01-30
PRIOR FILING DATE: 2001-01-30
PRIOR FILING DATE: 2001-01-30
PRIOR FILING DATE: 2000-09-21
PRIOR PILICATION NUMBER: US 60/234,687
PRIOR PLICATION NUMBER: US 09/608,408
PRIOR PILING DATE: 2000-06-30
PRIOR PILING DATE: 2000-06-30
PRIOR PILING DATE: 2001-01-29
NUMBER: OF SEQ ID NOS: 49117
SEQ ID NO 14748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: No. US20020137677Alak, Julia E.
APPLICANT: West, James W.
APPLICANT: West, James W.
APPLICANT: Presnell, Scott R.
APPLICANT: Holly, Richard D.
APPLICANT: Nelson, Andrew J.
TITLE OF INTENTION: SOLUBLE ZALPHAll CYTOKINE REC:
FILE REPERENCE: 00-22
CURRENT APPLICATION NUMBER: US/09/825,561A
CURRENT FILING DATE: 2000-04-05
PRIOR APPLICATION NUMBER: US 60/194,731
PRIOR APPLICATION NUMBER: US 60/222,121
PRIOR FILING DATE: 2000-07-28
NUMBER OF SEQ ID NOS: 86
SEQ ID NO 66
SEQ ID NO 66
LENGTH: 741
                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: MAP TO AC018525.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 66, Application US/09825561A Patent No. US20020137677A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; LCCATION: (1)...(741)
; OTHER INFORMATION: n = A,T,C or G
US-09-825-561A-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                               TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1173 T 1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       383 T 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-864-761-14748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-825-561A-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
```

```
1095 AATCTTGCGGCTGAGCGGTTCATGAAAACCGATATACGCCTTGCACCTGTCCGGAAAAGC 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1073 TCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATC 1132
                                                                                                                                                                                                                                                                                                              953 GGTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGACGGCTCAGTCCTGCTAT 1012
                                                                                                                                                                                                                                                                                                                                                                                                                     1013 ATTACTGTCATGGCCACTATGGCAGATGACCAGGTTTAAATTCCCCGATAATCCG 1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            398 ATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGC 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        578 ITCIGICIGACGCAGACGIGCIICGIAITCIICACGCCCGGCGCCCCACCACGAGCCA 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCTCCATATAGGGGAAGTAATTTTCAAATTCGGCTTCTCCGGGTTCCTAAAAGGATCAG 976
                                                                                                                                                                                                                                                                                                                                                                                                                                                      833 AACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGG 892
                                                                                                                                             893 CACAACAATGAAATCACACAGATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTA 952
                                                                                                                                                                                                                                                            199 ATHAARGAYMGNACNYTNGAYYTNMGNCARGAYCARTAYGARGARYTNAARGAYGARGCN 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              379 GGNAAYTAYWSNCARGARTGYGGNWSNTTYYTNYTNGCNGARWSNMGNCARTAYAATH 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   458 CAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       518 GACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGGCTCATTCCCAGGTG
                                                                                                                                                                                                                                                                                                                                                           259 ACHWSNIGIWSNYINCAYMGNWSNGCNCAYAAYGCNACNCAYGCNACNTAYACNIGYCAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ë.
  Length 741;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Berka, Randy M.
APPLICANT: Berka, Randy M.
APPLICANT: Clausen, Ib Groth
TITLE OF INVENTION: Methods For Monitoring Multiple Gene
TITLE OF INVENTION: Expression
FILE REFERENCE: 10085.500-US
CURRENT APPLICATION NUMBER: 05/09/974,300
CURRENT FILING DATE: 2001-10-06
PRIOR APPLICATION NUMBER: 09/680,598
PRIOR APPLICATION NUMBER: 09/680,598
PRIOR APPLICATION NUMBER: 00/739,526
PRIOR PILING DATE: 2001-10-06
PRIOR FILING DATE: 2001-03-27
NUMBER OF SEQ ID NOS: 8481
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 757
LENGTH: 1427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 36; DB 10; Length 14
Pred. No. 0.24;
0; Mismatches 185; Indels
Score 36.2; DB 10;
Pred. No. 0.13;
                                                    48; Mismatches 170;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 757, Application US/09974300 Patent No. US20020146721A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Bacillus licheniformis
US-09-974-300-757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 3.0%;
Best Local Similarity 46.0%;
Matches 160; Conservative
     3.18; 27.68;
                                                       Conservative
     Query Match
Best Local Similarity
Matches 83; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1133 A 1133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          439 W 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-974-300-757/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1035
```

```
; ORGANISM: Bacillus licheniformis US-09-974-300-1702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 536
                                                                                                                                                                                                                                     g
                                                                                                                            ð
                                                                                                                                                              g
                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1073 TCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATC 1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     638 GCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCATGTCC 697
                                     1013 ATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCG
                                                                                     698 TTTTCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTC 745
                                                                                                                       TTTTTGCTTCGTCAGCCTTGCCACCATGCTGATGAGCGGAATGTCTTC 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 35.4; DB 9; Length 480;
Pred. No. 0.19;
0; Mismatches 61; Indels
                                                                                                                                                                                                          Sequence 8152, Application US/09918995
Publication No. US2003007362341
GENERAL INFORMATION:
TITLE OF INVENTION:
TITLE OF INVENTION:
FROM VARIOUS CDNA LIBRARIES
FILE REFERENCE: 20411-756
CURRENT FPLICATION NUMBER: US/09/918,995
CURRENT FILING DATE: 1099-01-20
NUMBER OF SEQ ID NOS: 38054
SEQ ID NOS: 38054
SEQ ID NOS: 38054
SEQ ID NO 8152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1702, Application US/09974300
| Sequence 1702, Application US/09974300
| Patent No. US20020146721A1
| GENERAL INFORMATION:
| APPLICANT: Clausen, Ib Groth
| TITLE OF INVENTION: Methods For Monitoring Multiple Gene
| TITLE OF INVENTION: Expression
| FILE REFERENCE: 10085.500-US
| CURRENT APPLICATION NUMBER: US/09/974,300
| CURRENT PAPLICATION NUMBER: 09/680,598
| PRIOR PILING DATE: 2000-10-06
| PRIOR APPLICATION NUMBER: 60/279,526
| PRIOR FILING DATE: 2000-10-06
| PRIOR FILING DATE: 2001-03-27
| NUMBER OF SEQ ID NOS: 8481
| SEQ ID NO 1702
| SEQ ID NO 1702
| TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; NAME/KEY: misc_feature
; LCCATION: (1)...(480)
; OTHER INFORMATION: n = A,T,C or G
US-09-918-995-8152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ch 3.0%;
1 Similarity 54.1%;
72; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1133 ATGCCCTCTTTT 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTTCCTTTTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: DNA ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                           US-09-918-995-8152/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-974-300-1702/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 480
                                                                                                                       918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                               셤
                                                                                     ö
                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                               411
                                                                                                                                                              967 CGTCTCCCTGCGGAACCAAAATCCGTTCACGCCCTCTTGAATGACTTCCCGGTGTCCGC 908
                                                                                                                                                                                                                         471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    303 CGTTCCGGTCGGGATAAAAATCGCGCGGTGCGGTCCATGCAGACACATCCCCCACG 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             907 GGTTGTCCGCTGCAACGCGGGGCTTTCCTGACGCCATTCCTTCAAGGAGGTTCATGCCGA 848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       423 GCGATAACGGCCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTT 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         339 ...AN.Y.CM.SM.WNB.SG.NYSG.W.NCT.S.HN.S.WSH.....C...A.MNSH.N.Y.. 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 483 TCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCA 542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           459 YK.SY...MKST.RYMWSBR.B...B.BS...TBSCT.,MD.S.D.THTHA..C..ATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  399 BA.....MS.DM.Y..M.M.A.M..TYT.H.Y.AASMCG.SRNMBTH.BNBC...M.STG
                                                                                                       352 CATCCCCAGGGTAACAGCGTCCCTGTCATTCTTCTGAATGACATCAGGGATCCGC
                                                                                                                                                                                                                   412 CCGTCTCACTGGCGATAACGGGCACGCGGAGACTGACGCTTCAGCCAGTACCAA
                                                          Gaps
                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
Ouery Match 3.0%; Score 35; DB 10; Length 1135; Best Local Similarity 50.9%; Pred. No. 0.46; Matches 83; Conservative 0; Mismatches 80; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 513;
                                                                                                                                                                                                                                                                                                                                                            847 GCCCTTCCCTGATGCTTGAGGCGACAGACACGTCTGCAAGCTG 805
                                                                                                                                                                                                                                                                                                                          472 ACGCTTCATTTCCGAAGGCATGACCACCACACTGGCAATCCG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Prior Application removed - See Palm or File Wrapper NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.9%; Score 34.8; DB 9;
ilarity 6.9%; Pred. No. 0.32;
Conservative 115; Mismatches 290;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/10/123,155
CURRENT FILING DATE: 2002-04-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 536, Application US/10123155
Publication No. US20030068794A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Desnoyers, Luc
Filvaroff, Ellen
Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tumas, Daniel
Watanabe, Colin K
Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Baker, Kevin P. APPLICANT: Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sherwood, Steven
Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILE REFERENCE: P3330R1C30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; ORGANISM: Homo Sapien
US-10-123-155-536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 30; Conserv
```

œ

셤 ð 셤 õ g ă

```
291 HY.RCMMN..RN.R...YK.RSWBG.BCT.YYBGYCB.BH.DAARK.Y.GMC.D.BKYY. 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 34.8; DB Pred. No. 0.43; 70; Mismatches
                                                                                                                                                                                                                                                                                                                                                       Sequence 312, Application US/10184634
Publication No. US20030068684A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ilarity 5.2%; Pre
Conservative 170;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Godowski, Paul J. Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 Similarity
28; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-184-634-312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local
Matches 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        đ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                    g
                                                                                                                                                                         g
                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                           g
                                                               ö
                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Goddard, Audrey
APPLICANT: Goddard, Audrey
APPLICANT: Gundey, Austin L.
APPLICANT: Gundey, Austin L.
APPLICANT: Gundey, Austin L.
APPLICANT: Smith, Victoria
APPLICANT: Watenable, Colin K.
APPLICANT: Wacanable, Colin K.
APPLICANT: Applicant: Colin K.
APPLICANT: Conserved and Colin K.
APPLICANT: Conserved APPLICANT: Colin K.
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REPERENCE: P3430RLC2Z7
CURRENT APPLICATION NUMBER: US/10/184,644
CURRENT FILING DAFE: 2002-06-28
Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190 TGTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACACAATGATCTGTGCCGTTCTGTTAA 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       250 TATCAAACCGGTACTCAATATCTTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCG 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HM. MD. SMSC....B. MM. SNS...S. SCS..N. YMT...TH...D.B...MS.A...R 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   310 GTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCCACGGGTAACA 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           :: :: :: :: :: :: 471 TDYYB.BAKMMCMDMMR...H..R.TCRK.NBYRCR...M.H..YCYAMTNTN.K.KB 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11 .KB.HH.T.Y.TSHKCYY...CHBTSR.RMCA...W....Y.Y...YK.S...C...H. 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          430 CGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAG 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        490 GCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCA 549
                                                                                                                                                   : : : : | : : : | 1.59 .MY.CY...SC.SD..NRS.H.NY.NAB.Y.ANN..RS.YNSS....M.YY.CN.TN.H. 100
                                                                                                                                                                                                    AGCTGATACAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACC 722
        N.BG.,BS:CS.T...NCS.H.Y..SSWAWSKA.C.BS.MNW..R.N..SB.Y...T.N. 220
                                                                                                                                                                                                                              S. DNDH.R.WA..N.CM..NRM.M..SNRY.S.C.GCTS.SS.....M.S.GRBKMC.G 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      591 YRHYK..B.MTMH.NSHSN...BB.MBN.N...GAM..NCK.YB.KH.YCS.....N.MM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   351 MD. ANSRMSK.B. YD. .. AYDY. .. S. MYS. KRSD. YR.R. .. NMN.D.A.T.D. MSND.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCGIAITCITCACGCCCGCCCCACCACGAGCCAGCGAAATGAITTCCCTTCCATCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 802;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 2.9%; Score 34.8; DB 9; Best Local Similarity 5.2%; Pred. No. 0.43; Matches 28; Conservative 170; Mismatches 336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 312, Application US/10184644 Publication No. US20030044930A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.9%;
5.2%; P
                                                                                                                                                                                                                                                                                    TGAACGATAAGCGGA 737
                                                                                                                                                                                                                                                                                                            : | : | : : : | YGCM.GCY.TSS.KA 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Baker, Kevin P.
Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-184-644-312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  531
                                                                                                                                                                                                                                                                                      723
                                                                                          219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ďΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                        ð
```

```
190 IGIIGCAITICCCCTIAGCCIGACIAGCCAGAGACACAAIGAICIGIGCCGIICTGTIAA 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      411 .KB.HH.T.Y.TSHKCYY...CHBISR.RMCA...W....Y.Y...YK.S...C...H. 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAG 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCATGACCACCACCACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCCACCTGCCA 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            291 HY.RCMMN.RN.R.XK.RSWBG.BCT.YYBGYCB.BH.DAARK.Y.GMC.D.BKYY. 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         250 TATCAAACCGGTACTCAATATCTTCTCGGGGCTGGCTGCCATCATCCGGAAGCGTTCCG 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          531 HM..MD.SMSC....B.MM.SNS..S.SCS..N.YMT...TH...D.B...MS.A...R 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     310 GTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACA 369
550 TTAACACATCTCCGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGGCGTGCTTCGTATT 609
                                                231 B:YSK.BC.CCKG.N.C..T.MCK..AAC.CA.C....SSN.SY..N..YHCM.RBHH 172
                                                                                                                           610 CTTCACGCCCGGCGCCCACCACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGAT 669
                                                                                                                                                                            171 HTYK.W.RWH.RDHDKRW.KK.SMM...RSHHBCY..BB...BSAHSC.SS...BMC..A 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                591 YRHYK., B. MTMH, NSHSN., .. BB. MBN.N., .. GAM., NCK.YB. KH.YCS..., N. MM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P943-0016217
CURRENT APPLICATION NUMBER: 105/10/184,634
CURRENT FILLING DAIE: 2002-06-28
                                                                                                                                                                                                                                                    670 ACAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACCT 723
                                                                                                                                                                                                                                                                                           DB 9; Length 802;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 312
LENGTH: 802
```

us-09-674-277-2.rnpb

```
276 CTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCCGCAGTGCG 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     336 CCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATG 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                396 ACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCA 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | :| :: :: | : :: | : :: | 243 AA.YC.TMSR...W.DRHRH..W.D.BS.KSNNBY...AKYHA.CAK.B.BRS..T..M 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  456 GCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACTGGCAATCCGG 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             362 C-..HN...WHR.YANTC.AS.MMCMRYW.BM....T.TST..NTM..ABN...SC.S.B 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    : : | | : | : | : : | : : | : : | 124
183 CGSY.KNCCBS.Y.A.B..BT...TK.HCG..B.H..KBHRNA...MMK.A.NR..S.GK 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 516 TAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCAGG 575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          123 KM.ACY..B..HN.M.BS.WAS.C..BN.T.HB...N..AYH..KDBB..M.TS.MYRH. 64
                                  TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3430RTC227 CURRENT APPLICATION NUMBER: US/10/184,644 CURRENT PILING DATE: 2002-06-28 Prior Application removed - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 612 LENGTH: 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          156 AAAATTCGGGCTGAAAAGAGGATCCGCCGTTATCTGTTGCATTTCCCCTTAGCCTGACTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFRENCE: P3430HZ171 US/10/184,634
CURRENT APPLICATION NUMBER: 2002-06-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216 GCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATAAAACCGGTACTCAATATCTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 527;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               576 TGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCC 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Prior Application removed - See File Wrapper or Palm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
2.9%; Score 33.8; DB 9;
Best Local Similarity 9.9%; Pred. No. 0.73;
Matches 46; Conservative 134; Mismatches 282;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 522, Application US/10184634 Publication No. US20030068684A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Godowski, Paul J. Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Watanabe, Colin
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Baker, Kevin P. APPLICANT: Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Desnoyers, Luc
          Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                      , okGANISM: Homo Sapien
US-10-184-644-522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-184-634-522/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 3, Application US/10274974

Sequence 3, Application US/10274974

Sequence 3. Application US/102049041

GENERAL INFORMATION:

TITLE OF INVENTION:

CURRENT APPLICATION UNDERS:

CURRENT APPLICATION NUMBER: 09/685,853

PRIOR APPLICATION NUMBER: 09/685,853

PRIOR FILING DATE: 2000-10-11

PRIOR FILING DATE: 2000-10-14

NUMBER OF SEQ ID NOS: 3

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 3

LENGTH: 74962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5571 AGCTGAGATCATGCCATTGCACTCCAGCCTGGGCAACAAGAGTGAAACTCCATCTCAAAA 5630
                                                                                                                                                                                 171 HTYK.W.RMH.RDHDKRM.KK.SMM...RSHHBCY..BB...BSAHSC.SS...BMC..A 112
                                         231 B.YSK.BC.CCKG.N.C..T.MCK..AAC.CA.C....SSN.SY..N.YHCM.RBHH 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56 AGCTGAAAGTAGGCCTGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAA 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116 CAATGTGATAAATTACTCCGTTACCGGAAAACCGCTGAACAAATTCGGGCTGAAAAGAG 175
550 TTAACACATCTCCGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATT 609
                                                                                                                                  CTTCACGCCCGGCCCCACCACGAGCCAGCGAATGATTTCCCTTCCATCTTCAGCTGAT 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                         670 ACAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACCT 723
                                                                                                                                                                                                                                                                                                  :::|:: ::| : ::| : |::| : :: : : : : ::| : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 74962;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            68; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 34.2;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5691 GAAACTCTGTCATTTGTGACAAT 5713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          176 GATCCGCCGTTATCTGTTGCATT 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 522, Application US/10184644
Publication No. US20030044930Al
GENERAL INFORMATION:
APPLICANT: Baker, Kevin P.
APPLICANT: Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; NAME/KEY: misc_feature
; LCCATION: (1)...(74962)
; OTHER INFORMATION: n = A,T,C or G
US-10-274-974-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 2.9%;
Best Local Similarity 52.4%;
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Smith, Victoria
Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Desnoyers, Luc
Goddard, Audrey
Godowski, Paul J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gurney, Austin L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pan,James
                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-274-974-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                     ď
                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                             셤
                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
```

244

g

ò 셤

ŏ 셤 à ò q g

õ

셤 ö g ŏ 셤

å

```
1073 TCGAAGTCTGAGGATGGAAGGAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATC 1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1013 ATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCG 1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1073 TCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATC 1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               316 CTTAAACCAGAGTTCATAAGCTTGATGAGTTATGATAAAAAGATGTTCATCATGGATTTT 257
                                             295 CTTAAACCAGAGTTCATAAGCTTGATGAGTTATGATAAAAAGATGTTCATCATGGATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       376 ATCTCTGACATGGCCATTCTGAAAGATCTCTCGAACAGAATCCAACTCCCAGAGGATTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; OTHER INFORMATION: Genbank Accession No. US20020142981A1 U32989
US-09-880-107-3347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1712;
                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Gene Logic, Inc.
TITLE OF INVENTION: Gene Expression Profiles in Liver Cancer
FILE REFERENCE: 44921-5028 %0.
CURRENT APPLICATION NUMBER: US 60/211,379
PRIOR APPLICATION NUMBER: US 60/211,379
PRIOR FILING DATE: 2000-06-14
PRIOR FILING DATE: 2000-06-14
PRIOR PLING DATE: 1000-06-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 33.8; Di
Pred. No. 1.6;
0; Mismatches
                                                                                                                                                                                                                                                Sequence 3347, Application US/09880107
Patent No. US20020142981A1
GENERAL INFORMATION:
APPLICANT: Horne, Darci T.
APPLICANT: Vockley, Joseph G.
APPLICANT: Scherf, Uwe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 96, Application US/10123155 Publication No. US20030068794A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ouery Match 2.9%;
Best Local Similarity 53.4%;
Matches 71; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR FILING DATE: 2000-10-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Stewart, Timothy A
                                                                                        1133 ATGCCCTCTTTT 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1133 ATGCCCTCTTTT 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gerritsen, Mary E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Watanabe, Colin K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         256 ATTTCCTTTTGTT 244
                                                                                                                  11 || || 12
235 ATTTCCTTTTGTT 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Desnoyers, Luc
Filvaroff, Ellen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS: 3950
SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gurney, Austin I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DeForge, Laura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gao, Wei-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Homo sapiens
                                                                                                                                                                                                        RESULT 24
US-09-880-107-3347/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-123-155-96/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 3347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                          셤
                                                                                          ò
                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Olga Bandman
TITLE OF INVENTION: GENES DIFFERENTIALLY EXPRESSED IN VASCULAR TISSUE ACTIVATION
TITLE REPERENCE: PA-0028 US
CURRENT APPLICATION NUMBER: US/10/044,090
CURRENT FILING DATE: 2002-01-09
NUMBER OF SEQ ID NOS: 850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1013 ATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGATAATCCG 1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           156 AAAATTCGGGCTGAAAAGAGGATCCGCCGTTATCTGTTGCATTTCCCCTTAGCCTGACTA 215
                                                                                                                                                                                                                                                                               276 CTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAAATCGCGCAGTGCG 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   303 B.CH.CSS.B.N.K.M..TMT.MGD.CCB...N.R.....HWRAY..W..TMCBA.G. 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACCACTGGCAATCCGG 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : : | : | : | : | : | 183 GSY. KNCCBS.Y.A.B..BT...TK. HCG..B.H..KBHRNA...MMK.A.NR..S.GK 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     516 TAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGGCTCATTCCCAGG 575
                                                                                                                                                                                                                                                                                                                                               216 GCCAGAGACACAATGATCTGTGCCGTTCTGTTAATATCAAACCGGTACTCCAATATCTTCT 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                362 C-..HN...WHR.YANTC.AS.MMCMRYW.BM....T.TST..NTM..ABN...SC.S.B 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             336 CCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATG 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     396 ACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCA 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                            ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1686;
                                                                                                                                                             Length 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature; OTHER INFORMATION: Incyte ID No. US20020137081A1 3507970CB1
US-10-044-090-362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                576 TGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCC 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62;
                                                                                                                                                                                    Pred. No. 0.73;
14; Mismatches 282;
                                                                                                                                                             DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 33.8; DB Pred. No. 1.5; 0; Mismatches
                                                                                                                                                          Score 33.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 362, Application US/10044090 Patent No. US20020137081A1 GENERAL INFORMATION:
                                                                                                                                                             Query Match 2.9%; Sco
Best Local Similarity 9.9%; Prec
Matches 46; Conservative 134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 2.9%;
Best Local Similarity 53.4%;
Matches 71; Conservative
    612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PERL Program
                                                                                               ; ORGANISM: Homo Sapien
US-10-184-634-522
    NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-044-090-362/c
                       SEQ ID NO 522
LENGTH: 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (PE: DNA
                                                                     TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
```

à

g

```
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                         TYPE: PRT
                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                         402
                                                                                                                                                                                                                                                                                                                                                                                                                                481 ACYT....HBS.H.M.MN.RWM...AYCMBH.Y.BAB.KH.YC.Y..TNH.T...NATC. 422
                                                                                                                                                                                                                                                                                                                                                                                                               CCATACCAAACGCTTCATTTTCCGAAGGCATGACCACACACTGGCAATCCGGTAGACG 522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTAACGCTGGGAAAAGGGCACCTGCCATTAACACTCTCCGCTCATTCCCCAGGTGTTCTG 582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              643 ATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCATGTCCTTTTT 702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       703 CGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCTGATGCAGCCCAGG 762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | : | : : : : : : : : : : CMB.S.T.N.A.T.Y.SAS..YAYSWA.AM.CYS...B.WR..HSG.S.TYSDDYR.GS 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   763 CGTGGATATGCAGGGGTAACGGTCGCATGGCTTCATTATGCAATGCGGGCCAGTCGAAAC 822
              APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P333081C30
CURRENT APPLICATION NUMBER: US/10/123,155
CURRENT APPLICATION NUMBER: US/202-04-15
Prior Application removed - See Palm or File Wrapper
NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                       343 ATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAG
                                                                                                                                                                                                                                                                                                          103 GGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       583 TCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCGGCGCCCACCACGAGCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SY.AS..H.NCRMN...S.TSBDSADWDSS.NMCMG.C...N.B..H..C.M..S.C.HY
                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                              Length 716;
                                                                                                                                                                                                                           Query Match 2.8%; Score 33.2; DB 9; Length 7
Best Local Similarity 8.0%; Pred. No. 1.4;
Matches 40; Conservative 135; Mismatches 322; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 348, Application US/10184644 Publication No. US20030044930A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            823 CCGGTGGAATAACCGTT 839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . N.S..SS.T.D..BBH 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Watanabe, Colin K. Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Baker, Kevin P. APPLICANT: Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Desnoyers, Luc
Wood, William
                                                                                                                                                                                  ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-184-644-348/C
                                                                                                                                                                                               US-10-123-155-96
                                                                                                                                   SEQ ID NO 96
LENGTH: 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                             463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 26
                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                             . a
                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                     706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          525 CHYSC.R...M.S..KN...SDM......BB..KNWW.MS.SBBW.BAC.HAC..KB 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                465 HR.CH.T.BDHBB.A.YRHBN.YM.A.CCTB.RBSMRKBSDYM..S.BHH..HYASM.. 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             177 ATCCGCCGTTATCTGTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACAATGATCTGT 236
                                                                                                                                                                                                                                                                                                                                                                                                                                              297 CGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCC 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      597 CGTGCTTCGTATTCTTCACGCCCGGCGCCCACCACGAGCCAGCGAAATGATTTCCCTTCC 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   657 ATCTTCAGCTGATACAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATC 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           285 BYCBYS..AMHSASC..SS.Y...R.MHH.NRAH....AC..MTCN.WRD.S.HAY.RD 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         645 M.Y.H.M..YD.HCSY..RWM.AT..SM..G...ASN...C..BM.HTA.DS.SH.,H
                                                                                                                                                                                                                                                                                                                                                                                   765 DDXYNYMMK...KDMWM.CCMNY.YYM.YDWK..GR.H.S.N.SS....RHMRY.YS.T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            417 TCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  477 TCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      585 WG.A..HCRMBH.YYTYYMSA.TRYSGINCHWIGR.HYI.GGHTGIMCRAHGYD.S..B.
                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                      Length 777;
                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                 or Palm
                                                                                                                                                                                                                                                                                           Best Local Similarity 7.5%; Pred. No. 1.5;
Matches 42; Conservative 179; Mismatches 342;
                                                                                                                                                                                                                                                                         DB 9;
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C27
CURRENT APPLICATION NUMBER: US/10/184,644
FLIOT APPLICATION NUMBER: US/10/184,644
Prior Application removed - See File Wrapper (NUMBER OF SEQ ID NOS: 612
ELECTION O 348
LENGTH: 777
                                                                                                                                                                                                                                                                      2.8%; Score 33.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                717 CCCACCTGAACGATAAGCGGAAC 739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 348, Application US/10184634 Publication No. US20030068684A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Watanabe, Colin K.
Wood, William I.
Zhang, Zemin
                                                                                                                                                                                                                                                                                      7.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Baker, Kevin P. APPLICANT: Chen, Jian
                                                                                                                                                                                                     ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-184-634-348/c
                                                                                                                                                                                                                           US-10-184-644-348
```

LENGTH

g

ð 셤 ç

ò

셤

셤 ò g ò g ŏ g ŏ 셤 ŏ g õ

å

```
281 .N.RHCHKNKD.D.DMKNRSH...BM.T.HASNAH..AAM..S.S.Y.AT..BADK.MA. 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            221 DAYYDNBS.MHWBB.AHY.B.NNBAMB..A.ASNS.AHWTS.ANNMRC..SSS.T....R 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   554 CACATCTCCGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTC 613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161 A..HA.S.HABSNYRB....TB..M.SY.MA.AMN.NTT.GBNH.DGNTNBN..GBACHN 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCACCACCACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCCACCTGCCATTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  401 GSADA. NSRA..GC. SSWSCNKAH. SRNW.TG. SYRYHABMYDS.A.A.M...R.A..NS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            341 SKSBS.BSS.BY...SNHRN..M...NHSSS...C.SMRR..TBTBNCNSHRTTMYM..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       314 GGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     434 CACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCAT
                                                                                                                                        APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 5997, Application US/09918995
; Publication No. US2003007362341
; GENERAL INCORMATION:
; APPLICAMT: Hyseq, Inc.
; TITLE OF INVENTION: NOVEL NUCLEIC ACID SEQUENCES OBTAINED
; TITLE OF INVENTION: ROW VARIOUS CDNA LIBRARIES
; FILE REFERENCE: 20411-756
; CURRENT APPLICATION NUMBER: US/09/918,995
; CURRENT FILING DATE: 2001-07-30
; PRIOR FILING DATE: 1999-01-20
; NUMBER OF SEQ ID NOS: 38054
; SOFTWARE: PRESEREE for Windows Version 3.0
; SEQ ID NO 5997
                                                                                                                                                                                                                                                                           Prior Application removed - See Palm or File Wrapper NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 2.8%; Score 33; DB 9; Le
Best Local Similarity 9.8%; Pred. No. 1.7;
Matches 32; Conservative 100; Mismatches 195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
2.8%; Score 32.8; DB 9;
Best Local Similarity 55.2%; Pred. No. 1.4;
Matches 64; Conservative 0; Mismatches 52;
                                                                                                                                                                                   TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3330R1C30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              614 ACGCCCGGCGCCCACCACGAGCCAGCG 640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        101 A. YH.NSSSY.C.BGKGRRSC.ANAG 75
                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/10/123,155 CURRENT FILING DATE: 2002-04-15
                                                  Stewart, Timothy A.
                                                                                             Watanabe, Colin K
                                                                                                                     Wood, William
                                                                       Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Homo Sapien
US-10-123-155-306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
CRGANISM: HOMO
US-09-918-995-5997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-918-995-5997
                                                                                                                                                                                                                                                                                                                             SEQ ID NO 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                494
                                                                                                                     APPLICANT:
                                                  APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                   LENGTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | | | :::::
....AC...MTCN.WRD.S.HAY.RD 226
                                                                                                                                                                                                                                                                                                                                                                                                177 ATCCGCCGTTATCTGTTGCATTTCCCCTTAGCCTGACTAGCCAGAGACAATGATCTGT 236
                                                                                                                                                                                                                                                                                                                                                                                                                             DDYYNYMAMK.,KDMWM.CCMNY.YYM.YDWK.,GR.H.S.N.SS....RHMRY.YS.T. 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGAAGCGTICCGGTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGACACATCC 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAACGCT 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          525 CHYSC.R....M.S..KN...SDM......BB..KNWM.MS.SBBM.BAC.HAC..KB 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCATTITCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAA 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGTGCTTCGTATTCTTCACGCCCCGGCGCCCACGAGCCAGCGAAATGATTTCCCTTCC 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                345 .BCRBB.NY.HYA...R.H.RH.TCHSC..SG..YIM..AAWMN..SY.CCBHNMG 286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCTICAGCIGATACAATACACGCAGCATAAATICAIGICCITITICGGGACGIAGCAIC 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            705 HMB.C..D.TY.AN.K..N.BN.A.MB.AD..AD..TMGRRKCSHMM..SY...CR.A
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3430R1C217 CURRENT APPLICATION NUMBER: US/10/184,634 CURRENT FILING DATE: 2002-06-28 PIOR APPLICATION TEMPORE - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WG.A. HCRMBH.YYTYNNSA.TRYSGTNCHWTGR.HYT.GGHTGTNCRAHGYD.S..B.
                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                     Length 777;
                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                     Query Match 2.8%; Score 33.2; DB 9;
Best Local Similarity 7.5%; Pred. No. 1.5;
Matches 42; Conservative 179; Mismatches 342;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BYCBYS. AMHSASC. SS.Y...R.MHH.NRAH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCACCTGAACGATAAGCGGAAC 739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    : | | : | |:: | |:: | | DHDA.C.SYA.TAHMC..HSTAC 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 306, Application US/10123155 Publication No. US20030068794A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Baker, Kevin P. APPLICANT: Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Desnoyers, Luc
Filvaroff, Ellen
Gao, Wel-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DeForge, Laura
                                                                                                                                                                                                                  TYPE: PRT
ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-123-155-306/c
                                                                                                                                                                                                                                                             US-10-184-634-348
                                                                                                                                                                    SEQ ID NO 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                              292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT
```

ö

ö

Length 690;

ö

Gaps

ö

Indels

- See File Wrapper or Palm

```
Prior Application removed
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 414
LENGTH: 811
                                                                                               : ORGANISM: Homo Sapien
US-10-184-644-414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-184-634-414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-184-634-414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  å
                                                                                                                                                                                                                                  å
                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCGCCCTATANTGAGTCGTATTACGCGCGCTCACTGGCCGTCGTTTTACAACGTCGTGA 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64 GTAGGCCTGTTCTGTCCGGTATTTAAATGCATTGACCGTCCCCGTATTTAAACAATGTGA 123
                                      Sequence 9370, Application US/10198846
| Publication No. US2003009974A1
| GENERAL INFORMATION:
| APPLICANT: Lillie, James
| APPLICANT: Lillie, James
| APPLICANT: Lillie, James
| APPLICANT: Au, Yongyao
| APPLICANT: War, Yongyao
| TITLE OF INVENTION: Rathleen
| TITLE OF INVENTION: RATHORS, COMPOSITIONS, KITS, AND METHODS
| TITLE OF INVENTION: THERAPY OF BREAST CANCER
| TITLE OF INVENTION: THERAPY OF BREAST CANCER
| TITLE OF INVENTION: THERAPY OF BREAST CANCER
| CURRENT APPLICATION NUMBER: US/10/198,846
| CURRENT FILING DATE: 2002-07-18
| PRIOR FILING DATE: 2001-07-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4 CAGGAGATGGAAAAAAAGCCAAAATAAAAATTGCCCATCCCAGCGCGCTCCAGCTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                             418 CACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACCAAAC 473
                                                                                                                               262 CATCAGCACCATTGGCCAGGCCTTCGAGTTGCGCTTCAAACAATACCTCACGAACC 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 32.6; DB 9; Length 617;
Pred. No. 2.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     55; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature

: LOCATION: 15, 17, 27, 62, 165, 441, 544, 600

: OTHER INFORMATION: n = A,T,C or G

US-10-198-846-9370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R10227
CURRENT APPLICATION NUMBER: US/10/184,644
CURRENT FILING DATE: 2002-06-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 14084
SOFWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 9370
LENGTH: 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 414, Application US/10184644 Publication No. US20030044930Al GENERAL INFORMATION: APPLICANT: Baker Kevin P. APPLICANT: Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Watanabe, Colin K. Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Desnoyers, Luc
Goddard, Audrey
Godowski, Paul J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best_Local Similarity 54.29
Matches 65; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                            US-10-198-846-9370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT
                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       염
                                                      음
                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
996 CGCTCAGTCCTGCTATATTACTGTCATGCCACTATGGCAGATGACCAGATCAGGTTTA 1055
                                                         ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                    756 GCCCAGGCGTGGATATGCAGGGGTAACGGTCGCATGGCTTCATTATGCAATGCGGGCCAG 815
                                                                                                                                                                                                                                                                542
                                                                                                                                                                                                                                                                                                                                                                       602
                                                                                                                                                                                                                                                                                                                                                                                                                                                      603 LPWYLRMLGQCTQTWHRVRKTTQEQLKRNVRFHAFISYSEHDSLWVKNELIPNLEKEDGS 662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              663 ILICLYESYFDPGKSISENIVSFIEKSYKSIFVLSPNFVQNEWCHYEFYFAHHNLFHENS 722
                                                                                                                                                                                                            816 TCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGATGCGCC 875
                                                                                                                                                                                                                                                                                                                 876 ATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAACGTTCTG 935
                                                                                                                                                                                                                                                                                                                                                                                                                        936 GICTIACGGGTGATGTAGGTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGA 995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               756 GCCCAGGCGTGGATATGCAGGGGTAACGGTCGCATGGCTTCATTATGCAATGCGGGCCAG 815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                423 VVNMMILSYNKLSDSVFRCLPKSIQILDLNNNQIQTVPKETIHLMALRELNIAFNFLTDLP 482
                                                                                                                                                     423 VVNMNLSYNKLSDSVFRCLPKSIQILDLNNNQIQTVPKETIHLMALRELNIAFNFLTDLP 482
                                                                                                                                                                                                                                                                                                                                                  543 MAVGWSDSYTCEYPLNLRGTRLKDVHLHELSCNTALLLUTIVVIMLVLGLAVAFCCLHFD
                                                                                                                                                                                                                                                          483 GCSHFSRLSVLNIEMNFILSPSLDFVOSCOEVKTLNAGRNPFRCTCELKNFIQLETYSEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C217
CURRENT APPLICATION NUMBER: US/10/184,634
                                                         ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     723 DHIILILLEPIPFYCIPTRYHKLKALLEKKAYLEWPKDRRK 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         - See File Wrapper or Palm
b; Score 32.4; DB 9;
Pred. No. 3;
97; Mismatches 219;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97; Mismatches 219;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 32.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 414, Application US/10184634 Publication No. US20030068684A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT FILING DATE: 2002-06-28
Query Match 2.7%;
Best Local Similarity 7.3%;
Matches 25; Conservative 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 7.3%;
Watches 25; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Prior Application removed NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      원
```

```
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7779 creacecrasagerescecristaacecacreassaacaasagaarecassaaaarecrast 7720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                996 CGGCTCAGTCCTGCTATATACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTA 1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         647 ITTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCATGTCCTTTTTCGGG 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           876 ATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAATTCAGGGAAAACGTTCTG 935
                                                                                                                                       543 MAVGWSDSYTCEYPINLRGTRIKDVHLHELSCNTÅLLIVTIVVIMLVLGLAVAFCCLHFD 602
                                                                                                                                                                                    936 GICTTACGGGTGATGTAGGTTTTTTGTCTGACAATAGTGAAGCGGTGACAGCATATCAGA 995
                                                                                                                                                                                                                                                                                                         663 ILICLYESYFDPGKSISENIVSFIEKSYKSIFVLSPNFVQNEWCHYEFYFAHHNLFHENS 722
                                                   483 GCSHFSRLSVINIEMNFILSPSLDFYQSCQEVKTLNAGRNPFRCTCELKNFIQLETYSEV 542
                     816 TCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGATGCGCC 875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  707 ACGIAGCAICCCCACCIGAACGAIAAGCGGAACAIIGICIGCIGAIGCAGCCCAGGCG 764
                                                                                                                                                                                                                       603 LPWYLRMIGQCTQTWHRVRKTTQEQLKRNVRFHAFISYSEHDSLWVKNELIPNLEKEDGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 6047, Application US/09764891
Sequence 6047, Application US/09764891
GENERAL INFORMATION:
APPLICATUR: ROSEN et al.
TITLE OF INVENTION:
FILE REFERENCE: PC006
CURRENT APPLICATION NUCLEIC Acids, Proteins, and Antibodies
FILE REFERENCE: PC006
CURRENT APPLICATION NUCLEIC Acids, Proteins, and Antibodies
FILE REFERENCE: PC006
CURRENT APPLICATION NUCLEIC Acids, Proteins, and Antibodies
SOFTWARE PALCATION NUCLEIC Acids, Proteins, and Antibodies
TITRE: DNA
TYPE: DNA
TYPE: DNA
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 32.4; DB 9; Length 11649;
Pred. No. 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies
TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies
TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies
CURRENT APPLICATION
UNBER: US/10/091,438
CURRENT FILING DATE: 2001-01-17
PRIOR PELICATION NUMBER: 09/764,879
PRIOR APPLICATION NUMBER: 60/179,065
PRIOR FILING DATE: 2000-01-31
                                                                                                                                                                                                                                                                                                                                                      DHIILILLEPIPFYCIPTRYHKLKALLEKKAYLEWPKDRRK 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.7%; Scort 10; 48.9%; Pred. No. 10; ... 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 272, Application US/10091438 publication No. US20030077606Al GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 2000-01-31
PRIOR APPLICATION NUMBER: 60/180,628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.77
Best Local Similarity 48.99
Matches 87; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; ORGANISM: Homo saplens
US-09-764-891-6047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-764-891-6047/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-091-438-272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                    g
                                                                                                                                                                                             ð
                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                           à
```

```
R FILING DATE: 2000-11-01
R APPLICATION NUMBER: 60/225, 268
R FILING DATE: 2000-08-14
R PPLICATION NUMBER: 60/236, 368
R FILING DATE: 2000-09-29
R APPLICATION NUMBER: 60/251, 856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/228,924
FILING DATE: 2000-08-30
APPLICATION NUMBER: 60/224,518
FILING DATE: 2000-08-14
APPLICATION NUMBER: 60/236,369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 2000-10-20
APPLICATION NUMBER: 60/249,299
FILING DATE: 2000-11-17
APPLICATION NUMBER: 60/236,327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 2000-09-29
APPLICATION NUMBER: 60/241,785
FILING DATE: 2000-10-20
APPLICATION NUMBER: 60/244,617
FILING DATE: 2000-11-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 2000-12-08
APPLICATION NUMBER: 60/229,344
FILING DATE: 2000-09-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 2000-09-25
APPLICATION NUMBER: 60/229,343
FILING DATE: 2000-09-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/229,287 FILING DATE: 2000-09-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 2000-08-14
APPLICATION NUMBER: 60/220,964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 2000-07-26
APPLICATION NUMBER: 60/241,809
                                                                                                                                                                                                          FILING DATE: 2000-08-14
APPLICATION NUMBER: 60/218,290
FILING DATE: 2000-07-14
APPLICATION NUMBER: 60/225,757
FILING DATE: 2000-08-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 2000-12-08
APPLICATION UNDBER: 60/235,834
FILING DATE: 2000-09-27
APPLICATION NUMBER: 60/234,274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 2000-09-21
APPLICATION NUMBER: 60/234,223
FILING DATE: 2000-09-21
                                          APPLICATION NUMBER: 60/225,758
FILING DATE: 2000-08-14
APPLICATION NUMBER: 60/220,963
FILING DATE: 2000-07-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 2000-08-14
APPLICATION NUMBER: 60/251,869
                                                                                                                                         APPLICATION NUMBER: 60/217,496 FILING DATE: 2000-07-11
                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/216,647
                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 2000-08-14
APPLICATION NUMBER: 60/216,880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 2000-07-07
APPLICATION NUMBER: 60/225,270
APPLICATION NUMBER: 60/217,487
FILING DATE: 2000-07-11
                                                                                                                                                                                         APPLICATION NUMBER: 60/225,447
                                                                                                                                                                                                                                                                                                                                     LICATION NUMBER: 60/226,868
                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 2000-07-07
APPLICATION NUMBER: 60/225,267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000-09-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
```

```
R APPLICATION NUMBER: 60/236,367
R APPLICATION NUMBER: 60/236,367
R APPLICATION NUMBER: 60/237,039
R FILING DATE: 2000-10-02
R APPLICATION NUMBER: 60/237,039
R FILING DATE: 2000-10-02
R APPLICATION NUMBER: 60/236,370
R FILING DATE: 2000-09-29
R APPLICATION NUMBER: 60/236,802
R RILING DATE: 2000-10-02
R FILING DATE: 2000-10-02
R RILING DATE: 2000-10-03
R APPLICATION NUMBER: 60/237,040
R FILING DATE: 2000-10-03
R APPLICATION NUMBER: 60/237,040
R FILING DATE: 2000-10-03
R APPLICATION NUMBER: 60/237,040
R FILING DATE: 2000-10-02
R APPLICATION NUMBER: 60/239,935
R APPLICATION NUMBER: 60/239,935
                                                                                                                                                                                                                                                                                                                                                                                                                                       R FILING DATE: 2000-10-20

R APPLICATION NUMBER: 60/246,474

R FILING DATE: 2000-11-08

R PELING DATE: 2000-11-08

R PILING DATE: 2000-11-08

R PELING DATE: 2000-11-17

R PILING DATE: 2000-11-17

R PILING DATE: 2000-11-17

R PELING DATE: 2000-11-17

R PELICATION NUMBER: 60/249,210

R FILING DATE: 2000-11-17

R APPLICATION NUMBER: 60/249,210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LING DATE: 2000-08-22
PPLICATION NUMBER: 60/225,759
ILING DATE: 2000-08-14
PPLICATION NUMBER: 60/225,213
                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/239,937
APPLICATION NUMBER: 60/239,937
APPLICATION NUMBER: 70/239,937
                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/241,787
APPLICATION NUMBER: 60/241,787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 2000-08-14
APPLICATION NUMBER: 60/235,836
FILING DATE: 2000-09-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/230,438 PILING DATE: 2000-09-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/215,135
FILING DATE: 2000-06-30
APPLICATION NUMBER: 60/225,266
FILING DATE: 2000-08-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/249,218
FILING DATE: 2000-11-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 2000-11-17
APPLICATION NUMBER: 60/249,208
FILING DATE: 2000-11-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TLING DATE: 2000-08-22
PPLICATION NUMBER: 60/225,214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/249,213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 2000-11-17
APPLICATION NUMBER: 60/249,207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/227,182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1-80-000
PRIOR
```

ô

```
1154 TGTTCGACGGCGTCTTCACCCATTCTGATGCGCGTTTCGTCATCGTCCAAGAGTGTGGCT 1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          390 TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGAC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1034 GCGACTGCGATGGGCAGGCCGCCAACCCGGGCGCAATGACCGGTGTGCCGCTGGCTTGC 975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        450 GCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCA 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    974 GCCTCCATGGCGACGAGTCCGAAGGACTCATTAAAACTTGGCACGGCCACGATGTCCGCC 915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        330 AGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                           270 TCTTCTCTGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGC
                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                              Length 1254;
                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches 138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TILE OF INVERTION: Molecular Toxicology Modeling FILE REFERENCE: 44921-5038-US CURRENT APPLICATION NUMBER: US/09/917,800A CURRENT FILING DATE: 2001-07-31 PRIOR APPLICATION NUMBER: US 60/222,040 PRIOR FILING DATE: 2000-07-31
                                                                                                                                                                                                                                                                                                                                                DB 9;
                                                                                                                                                                                                                                                                                                                                                Score 32.2;
Pred. No. 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 60/222,880
PRIOR FILING DATE: 2000-11-02
PRIOR PRILING DATE: 2001-05-11
PRIOR PILING DATE: 2001-05-11
PRIOR PELICATION NUMBER: US 60/290,645
PRIOR PELING DATE: 2001-05-15
PRIOR APPLICATION NUMBER: US 60/292,336
PRIOR PILING DATE: 2001-05-22
PRIOR PELING DATE: 2001-05-22
PRIOR FILING DATE: 2001-05-22
PRIOR FILING DATE: 2001-06-06
PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION UNBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
PRIOR PILING DATE: 2000-08-03
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: Patentin ver. 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US 60/222,040 FILING DATE: 2000-07-31 APPLICATION NUMBER: US 60/222,880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: US 60/297,457 PRIOR FILING DATE: 2001-06-13 PRIOR PRICATION NUMBER: US 60/298,884 PRIOR FILING DATE: 2001-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/303,459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1734, Application US/09917800A Patent No. US20020119462A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                        ) ORGANISM: Corynebacterium glutamicum
US-09-738-626-451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NG DATE: 2001-06-19 (CATION NUMBER: US 6 NG DATE: 2001-07-09
                                                                                                                                                                                                                                                                                                                                           2.7%;
Best Local Similarity 45.5%;
Matches 115; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  : Castle, Arthur
: Elashoff, Michael
: Gene Logic, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           510 ATCCGGTAGACCG 522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            914 GCCCGATACACGG 902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -09-917-800A-1734/C
                                                                                                                                                                                                    SEQ ID NO 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR FILI
NUMBER OF
                                                                                                                                                                                                                                                   TYPE: DNA
                                                                                                                                                                                                                                 LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        981 TGACAGCATATCAGACGGCTCAGTCCTGCTATATTACTGTCATGGCCACTATGGCAGATG 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      921 AGGGAAAACGITCIGGICTIACGGGIGAIGIAGGITITITIGICIGACAAIAGIGAAAGCGG 980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     298 TLITIMKTLIDFVKMMVKYGTISPEEGVSYLENLDEMIALQTKNKLEKNATDNISKLFPA 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           741 TIGICIGCIGAIGCAGCCCAGGCGIGGAIAIGCAGGGGIAACGGICGCAIGGCIICAIIA 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58 YPPENKPGGSNYSFVDNLNLLKAITEKEKIEKERQSIRSSPLDNKLNVEDVDSTKNRKLI 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         801 TGCAATGCGGGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGACACTTCC 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DDYDSTKSGLDHKFQDDPDGLHQLDGTPLTAEDIVHKIAARIYEENDRAVFDKIVSKLLN 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         861 GCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACACAGATAATTC 920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     178 LGLITESQAHTLEDEVAEVLQKLISKEANNYEEDPNKPTSWTENQAGKIPEKVTPMAAIQ 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     238 DGLAKGENDETVSNTLTLTUTNGLERRIKTYSEDNFEELOYFPNFYALLKSIDSEKEAKEKE 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       358 PSEKSHEETDSTKEEAAKMEKEYGSLKDSTKDDNSNPGGKTDEPKGKTEAYLEAIRKNIE 417
                                                                                                     APPLICANT: Tumas, Daniel
APPLICANT: Watanabe, Colin K
APPLICANT: Watanabe, Colin K
APPLICANT: Wood, William
APPLICANT: Acris Encoping THE SAME
FILE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C30
CURRENT APPLICATION NUMBER: U5/10/123,155
CURRENT FILING DATE: 2002-04-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 468;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                              See Palm or File Wrapper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
2.7%; Score 32.2; ub y;
Best Local Similarity 7.0%; Pred. No. 2.4;
Matches 27; Conservative 117; Mismatches 241;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES FILE REFERENCE: 249-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/738,626 CURRENT FILING DATE: 2000-12-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1101 AGGCTGTTCCTGAAAGGAATAAAAG 1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WLKKHDKKGNKEDYDLSKMRDFINK 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 451, Application US/09738626
Publication No. US20020197605A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MIZOGUCHI, HIROSHI
ANDO, SEIKO
HAYASHI, MIKIRO
OCHIAI, KEIKO
YOKOI, HARUHIKO
TATEISHI, NAOKO
SENOH, AKIHIRO
IKEDA, MASATO
                                                                                Stewart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: NAKAGAWA, SATOSHI
                                                         Smith, Victoria
                                                                                                                                                                                                                                                                                                                                   Prior Application removed .
NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; ORGANISM: Homo Saplen
US-10-123-155-90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-738-626-451/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                     SEO ID NO 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                     APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
```

```
424911 GCGACTGCGATGGGCAGGCCGCCAACCCGGGCCGCAATGACCGGTGTGCCGCTGGCTTGC 424852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1106 TGCTCACTIACACCAAATAAATCTTGAATTGCATCAATAATGGCATATATGTTTACCGAT 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1166 ACCCAGGAAATAGTIGCCACITCATTTTTAAAATTTGTTTTAACAACGACATAAGTTCA 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              693 IGTCCTITITCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCTGAT
                                                    450 GCTTCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                633 AGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          753 GCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCATGGCTTCATTA 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1046 ACAGCTAATGTTTGGAAATAAGCAAAGAATGTTTCCAAATCTTCATTA 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes in
TITLE OF INVENTION: PROPERTY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 32; DB 10;
Pred. No. 5.6;
0; Mismatches 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR PLING DATE: 2000-03-21
PRIOR PLING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR PLING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR PLING DATE: 2000-05-36
PRIOR PLING DATE: 2000-05-36
PRIOR PLING DATE: 2000-11-27
PRIOR PLING DATE: 2000-11-27
PRIOR PLING DATE: 2000-11-27
PRIOR PLING DATE: 2000-12-22
PRIOR PLING DATE: 2001-02-16
PRIOR PLING DATE: 201-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 8107, Application US/09815242 Patent No. US20020061569A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                               Sequence 4609, Application US/09815242
Patent No. US20020061569A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Staphylococcus aureus US-09-815-242-4609
                                                                                                                                                                           424791 GCCCGATACACGG 424779
                                                                                                                                                                                                                                                                                                                                                                                                             Ohlsen, Kari L.
Zyskind, Judith W.
Wall, Daniel
Trawick, John D.
Carr, Grant J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Yamamoto, Robert T.
Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.7%;
Best Local Similarity 49.4%;
Matches 83; Conservative
                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: Haselbeck, Robert
                                                                                                                                             510 ATCCGGTAGACCG 522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 40
US-09-815-242-8107/c
                                                                                                                                                                                                                                                                                        US-09-815-242-4609/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 4609
LENGTH: 1311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
    셤
                                                                                              d
                                                                                                                                           ò
                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          å
                                                    å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     425031 TGTTCGACGGCGTCTTCACCCATTCTGATGCGCGTTTCGTCATCGTCCAAGAGTGTGGCT 424972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 424971 AAGGCGTCGGCCCAGGCATGCGGGGAGTGGCCGTCGACAAGCAATCCCGTCTCCCCTTCC 424912
                                                                                                                                                                                                                                                                                                            1013 ATTACTGTCATGGCCACTATGGCAGATGACCAGATCAGGTTTAAATTCCCCGGATAATCCC 1072
                                                                                                                                                                                                                                                                                                                                                                                                      1073 TCGAAGTCTGAGGATGGAAGGAAGGTGAAGGCTGTTCCTGAAAGGAATAAAAGTGACATC 1132
                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                          270 TCTTCTCTGGCGCTGCCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGC 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    330 AGTGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTC 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                390 TGAATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGAC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                     291 TITAAACCAAAGITCATAAGCITGGIGAGITATAATAAAGAGGIGCICGICGIGGAITIT 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Gaps
                                                                                                                                        ; OTHER INFORMATION: Genbank Accession No. US20020119462A1 NM_022403 US-09-917-800A-1734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 3309400;
                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                           Query Match 2.7%; Score 32.2; DB 10; Length 1689; Best Local Similarity 52.6%; Pred. No. 5.6; Matches 70; Conservative 0; Mismatches 63; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 2.7%; Score 32.2; DB 9; I
Best Local Similarity 45.5%; Pred. No. 3.5e+02;
Matches 115; Conservative 0; Mismatches 138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: OZAKI, AKIO
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; TYPE: DNA
; ORGANISM: Corynebacterium glutamicum
US-09-738-626-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1, Application US/09738626
Publication No. US20020197605A1
GENERAL INFORMATION:
APPLICANT: MIXOGOCHI, HIROSHI
APPLICANT: ANDO, SEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1133 ATGCCCTCTTTT 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HAYASHI, MIKIRO
OCHIAI, KEIKO
YOKOI, HARUHIKO
TATEISHI, NAOKO
SENOH, AKIHIRO
IKEDA, MASATO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: DNA ORGANISM: Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 7059
SOFTWARE: Patentin ver. 3.0
SEQ ID NO.
LENGTH: 3309400
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 1734
LENGTH: 1689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                       FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ති සි
                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          å
```

```
388 Y.B.A.G.RMYINYDA.GN.T..H..TMN.SCMATR.TCYTB.T.BN.MH...TMNR. 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      590 ACGCAGACGTGCTTCGTATCTTCACGCCCGGCGCCCCACCACGAGCCAGCGAAATGATTT 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        268 .....BBC.NB.C.SS.K-BN.RS..SNSN..BSYYRR.....SS.BC.M.CS.D...SS 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               209 SR.SBT.M.DRYH.HM.CTY..HCA.RRS..HCDNSDS.BHY..G.TA...DT.HYK.CS 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          770 AIGCAGGGGIAACGGICGCAIGGCIICAIIAIGCAAIGCGGGCCAGICGAAACCCGGIGG 829
                                                                                                                                                                                                                                                                                                                                                                                   628 BD.SSHH..B.C....HCS.CT...M.A.MM..RSRBC.HH....SSSS..GYHM.M..A 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                350 CACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCC 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  410 GCCCGTCTCACTGGCGATAACGGCCACGCCGGAGACTGACGCTTCAGCCAGTACCATACC 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     448 AM.M.M.T.M.Y...SM.KRND.M.TH.THW.A.H.T.TMMKRS.TN..M.....CC 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    530 TGGGAAAAGGGCACCTGCCATTAACACATCTCCGGTCATTCCCAGGTGTTCTGTCTĠCTG 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        328 NKTHBDYCBM.RHBC.MBGM.TWSTS.MMY.TST.HH.S.NMS..CYK.S..NS.H.C.M 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACG 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        710 TAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGAT 769
                                                                                                                                                                                                                                                                                                                                                   290 CATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCGGTGCGCCGGTCCATGCAGA 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       470 AAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGTAGACCGGTAACGC 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            149 C.G..BK..C..Y.SS.YC.B.HCY..HY....YHKS...K.....K.TRDH.SH.N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: 2hang, 2emin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                568 M.R., YH. MC., M.B., MDN., STSANT, B.RG. HMYN.H., NSSTYSSDYXSSYSS, SY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            830 AATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGATGCGCCATCAT 880
                                                                                                                                                                                                                                                                                                      ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SAT.THSMWS.T...HTMMS.M....NHBYM.MYC...D...CYT..T
                                                                                                                                                                                                                                                 Length 653;
                                                                                                                                                                                                                                                      Query Match 2.7%; Score 31.8; DB 9; Length 6
Best Local Similarity 5.8%; Pred. No. 4.2;
Matches 34; Conservative 186; Mismatches 370; Indels
                                          Prior Application removed - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 612
US/10/184,644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 42
US-10-184-634-402/C
US-10-184-634-402/C
Sequence 402, Application US/10184634
Publication No. US20030068684A1
GENERAL INFORMATION:
APPLICANT: BAKer, Kevin P.
APPLICANT: Chen, Jian
                       2002-06-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gurney, Austin L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Watanabe, Colin
Wood, William I.
CURRENT APPLICATION NUMBER:
CURRENT FILING DATE: 2002-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Desnoyers, Luc
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Godowski, Paul
                                                                                                                                                                               ; ORGANISM: Homo Sapien
US-10-184-644-402
                                                                                                    SEQ ID NO 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                       TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1403 ACCCAGGAAATAGTTGCCACTTCATTTTTTAAAATTTGTTTTAACAACGACATAAGTTCA 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1343 TGCTCACTTACACCAAATAAATCTTGAATTGCATCAATAATGGCATATATGTTTACCGAT 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             693 TGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCTGAT 752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Wood,William I.
APPLICANT: Zhang,Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          633 AGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1283 ACAGCTAATGTTTGGAAATAAGCAAAGAATGTTTCCAAATCTTCATTA 1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               753 GCAGCCCAGGCGTGGATATGCAGGGTAACGGTCGCATGGCTTCATTA 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 10; Length 1563;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             85; Indels
                                                                                                                                                                                       Essential Genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 32; DB 1; Pred. No. 6.2; 0; Mismatches
                                                                                                                                                                                                                                                                         CURRENT AFPLICATION NUMBER: 05/09/813,242

PRIOR APPLICATION NUMBER: 60/191,078

PRIOR FILING DATE: 2000-03-21

PRIOR PILING DATE: 2000-05-21

PRIOR PILING DATE: 2000-05-23

PRIOR PILING DATE: 2000-05-26

PRIOR FILING DATE: 2000-05-26

PRIOR PLILING DATE: 2000-05-26

PRIOR PLILING DATE: 2000-05-26

PRIOR PLILING DATE: 2000-10-23

PRIOR PLILING DATE: 2000-10-27

PRIOR PLILING DATE: 2000-11-27

PRIOR PLILING DATE: 2000-11-27

PRIOR PLILING DATE: 2000-11-27

PRIOR PLILING DATE: 2000-12-22

PRIOR PRILING DATE: 2000-12-22

PRIOR APPLICATION NUMBER: 60/257,931

PRIOR FILING DATE: 2001-02-22

PRIOR APPLICATION NUMBER: 60/257,931

PRIOR PLILING DATE: 2001-02-20

PRIOR SEQ ID NOS: 14110

SOFTWARE: FASTSED for WINGOWS Version 4.0
                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/815,242 CURRENT FILING DATE: 2001-03-21
                                                                                    APPLICANT: Trawick, John D.
APPLICANT: Carr, Grant J.
APPLICANT: Yamamoto, Robert T..
APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of
TITLE OF INVENTION: Prokaryotes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 402, Application US/10184644
Publication No. US20030044930Al
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
ORGANISM: Staphylococcus aureus
          Ohlsen, Kari L.
Zyskind, Judith W.
Wall, Daniel
Trawick, John D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 2.7%;
Best Local Similarity 49.4%;
Matches 83; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Watanabe, Colin K.
Wood, William I.
Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Desnoyers, Luc
Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                      FILE REFERENCE: ELITRA.011A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pan, James
Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; NAME/KEY: CDS
; LOCATION: (1)...(1563)
US-09-815-242-8107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -10-184-644-402/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 8107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 41
```

ò g δ g å 8

```
LENGTH: 1049
                                                                                                                                                                                                    SEQ ID NO 358
                                                    APPLICANT:
                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 44
                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                           å
                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                     470 AAACGCTTCATTTTCCGAAGGCATGACCACCACTGGCAATCCGGTAGACCGGTAACGC 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               388 Y.B.A.G.RMYTNYDA.GN..T...H..TMN.SCMATR.TCYTB.T.BN.MH...TMNR. 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SR.SBT.M.DRYH.HM.CTY..HCA.RRS..HCDNSDS.BHY..G.TA...DT.HYR.CS 150
                                                                                                                                                                                                                                        290 CATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGA 349
                                                                                                                                                                                                                                                                                            CACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCC 409
                                                                                                                                                                                                                                                                                                                                                  GCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACC 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                            530 TGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCAGGTGTTCTGTGTGCTG 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCATGTCCTTTTTCGGGACG 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGAT 769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              770 AIGCAGGGGTAACGGTCGCATGGCTTCATTATGCAATGCGGGCCAGTCGAAACCCGGTGG 829
                                                                                                                                                                                                                                                                                                            568 M.R..YH.MC..M.B..MDN..STSANT.B.RG.HMYN.H..NSSTYSSYSSYSSYSY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               590 ACGCAGACGTGCTTCGTATTCTTCACGCCCGGCGCCCACCACGAGGCCAATGATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     330 AATAACCGTTACCGGTGTCCTGACACCTTCCGCCATCAGATGCGCCATCAT 880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 653
FILE REFERENCE: P3430RLC217
; FILE REFERENCE: P3430RLC217
; CURRENT APPLICATION NUMBER: US/10/184,634
CURRENT FILING DATE: 2002-06-28
PIJOT APPLICATION Temoved - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 612
LENGTH: 653

TEMOTH: 653
                                                                                                                                                                                   2.7%; Score 31.8; DB 9;
1larity 5.8%; Pred. No. 4.2;
Conservative 186; Mismatches 370;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 358, Application US/10123155
Publication No. US20030068794A1
GENERAL INFORMATION:
APPLICANT: Baker Kevin P.
APPLICANT: Beresini, Maureen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Desnoyers, Luc
Filvaroff, Ellen
Gao, Wel-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DeForge, Laura
                                                                                                                                          ; ORGANISM: Homo Sapien
US-10-184-634-402
                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                               TYPE: PRT
                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  503
                                                                                                                                                                                                  Local
                                                                                                                                                                                                Best Loca
Matches
                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                 ŝ
                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

Goddard, Audrey Godowski, Paul J. Gurney, Austin L. Sherwood, Steven Gerritsen, Mary E.

```
Sequence 35, Application US/09891641

Patent No. US20020155612A1

GENERAL INFORMATION:

GENERAL INFORMATION:

GENERAL INFORMATION:

GENERAL INFORMATION:

GENERAL INFORMATION:

APPLICANT: Wang, Tao

TITLE OF INVENTION: NATURAL PROMOTERS FOR GENE EXPRESSION IN BACILLUS SPECIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      973 TGAAGCGGTGACAGCATATCAGACGCTCAGTCCTGCTATATTACTGTCATGGCCACTAT 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               493 TGACCACCACACTGGCAATCCGGTAGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTA 552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 553 ACACATCTCCGCTCATTCCCAGGTGTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTT 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATACACGCAGCATAAATTCATGTCCTTTTTCGGGACGTAGCATCCCCACCTGAACGATAA 732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S.H.RY..T....SCN.A.S..NCS.N.GM..S.D..HSSMB...SNMS.H.A.CRMRG 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   853 CACCTTCCGCCATCAGATGCGCCATCATGGGTGAGATAGGCACAACAATGAAATCACACA 912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   913 GATAATTCAGGGAAAACGTTCTGGTCTTACGGGTGATGTAGGTTTTTTGTCTGACAATAG 972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           370 M.SS.T.S.NKSTYRB....N.S.H....S...NTHC..MT.N.S.H....NN 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      610 SS.HNHNKK.M.BM.NWA.N.KDA.C.S..RDSNSS.H.B..MD...TASD..H.YNN
                                                                   APPLICANT: Watanabe, Colin K
APPLICANT: Wood, William
APPLICANT: Zhang, Zemin
APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 613 CACGCCCGGCCCCACCACGAGCCAGCGAAATGATTTCCCTTCCATCTTCAGCTGATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGAACATTGTCTGCTGATGCAGCCCAGGCGTGGATATGCAGGGGTAACGGTCGCATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   793 CTTCATTATGCAATGCGGGCCAGTCGAAACCCGGTGGAATAACCGTTACCGGTGTCCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1049;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                            See Palm or File Wrapper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23; Conservative 151; Mismatches 391;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 5.7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.7%; Score 31.8;
                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/10/123,155 CURRENT FILING DATE: 2002-04-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1033 GGCAGATGACCAGATCAGGTTTAAA 1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        250 .N.NN.HH...MT.KNNR.R..A.A 226
Smith, Victoria
Stewart, Timothy A.
                                                 Tumas, Daniel
Watanabe, Colin K
Wood, William
                                                                                                                                                                                                                                                                            Prior Application removed - NUMBER OF SEQ ID NOS: 550
                                                                                                                                                                                                                                                                                                                                                                                                 ; ORGANISM: Homo Sapien
US-10-123-155-358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-891-641-35/c
```

ô

```
APPLICANT: HOLTZMAN, Douglas A.
APPLICANT: FRASER, Christopher C.
APPLICANT: SHARP, John D.
APPLICANT: SHRAP, John D.
APPLICANT: SHRAP, John D.
APPLICANT: HOLTZMAN, DOUGLES S.
TITLE OF INVENTION: ANTIBODIES HAVING DIAGNOSTIC, PREVENTIVE, THERAPEUTIC, AND OTH
FILE REPERBENGE: 10147-1103
CURRENT APPLICATION NUMBER: US 09/596,123
CURRENT PILING DATE: 2000-60-16
PRIOR FILING DATE: 2000-60-16
PRIOR FILING DATE: 1999-06-29
NUMBER OF SEQ ID NOS: 100
NUMBER OF SEQ ID NOS: 100
NUMBER OF SEQ ID NOS: 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000 ACTCCACCGTGGCTGGCACTGTCGGTGGGCACTGGCTGGGCCTGCACTGAGGTGCCT 1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    456 GCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGG 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    396 ACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 31.8; DB 9; Length 3153;
Pred. No. 11;
0; Mismatches 72; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                              Length 3153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         72; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 2.7%; Score 31.8; DE Best Local Similarity 51.0%; Pred. No. 11; Matches 75; Conservative 0; Mismatches
    PRIOR APPLICATION NUMBER: US 09/393,996
PRIOR FILING DATE: 1999-09-10
PRIOR PLILING DATE: 1999-010
PRIOR PILING DATE: 2000-06-23
PRIOR APPLICATION NUMBER: US 09/420,707
PRIOR APPLICATION NUMBER: US 09/420,707
NUMBER OF SEQ ID NOS: 460
SOFTWARE: FastSEQ for Windows Version 4.0
ENGTH: 3153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1880 GGGCCCATGTAGCTGGAAGTAGGGAA 1854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       516 TAGACCGGTAACGCTGGGAAAAGGGCA 542
APPLICATION NUMBER: US 09/393,996
FILING DATE: 1999-09-10
APPLICATION NUMBER: US 09/602,871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-189-123-73/c
; Sequence 73, Application US/10189123
; Publication No. US20030082586A1
; GENERAL INFORMATION:
; APPLICANT: KIRST, Susan J.
                                                                                                                                                                                                                                                                                              ; NAME/KEY: misc_feature
; LOCATION: (1)...(3153)
; OTHER INFORMATION: n = A,T,C or G
US-09-759-130B-343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Patentin version 3.1
SEQ ID NO 73
LENGTH: 3153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 2.7%;
Best Local Similarity 51.0%;
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (3048)...(3048)...
OTHER INFORMATION: unknown
US-10-189-123-73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: (3043)..(3043)
OTHER INFORMATION: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (3043)..(3043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM: Mus sp.
                                                                                                                                                                                                                                  TYPE: DNA ORGANISM: Mus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: HOLTZMAD, DOUGLAS A TITLE OF INVENTION: NOVEL GENES ENCODING PROTEINS HAVING TITLE OF INVENTION: PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC, AND OTHER TITLE OF INVENTION: USES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           930 GAIGATTICCCGATGCCCGCGATTAICTGTGGCGATCGCCGGTTGTTCTGCCGCCATTCC 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         452 ITCAGCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACACACTGGCAAT 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                392 AATGACATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGC 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          272 TICICIGGCGCTGGCTGCCATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAG 331
                                                                                                                                                                                                                                                                                                                                                                                    332 IGCGCCGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTG 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                 DB 9; Length 1146;
                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                 Score 31.8; DB 9;
Pred. No. 6;
0; Mismatches 132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Millennium Pharmaceuticals, Inc.
APPLICANT: McCarthy, Sean A
APPLICANT: Fraser, Christopher C
APPLICANT: Sharp, John D
APPLICANT: Barnes, Thomas S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILE REFERENCE: MPIOG-5350MNIM
CURRENT APPLICATION NUMBER: US/09/759,130B
CHRRENT FILING DATE: 2002-09-16
       FILE REFERENCE: CL1686 US NA
CURRENT APPLICATION NUMBER: US/09/691,641
CURRENT FILING DATE: 2001-06-26
NUMBER OF SEQ ID NOS: 81
SOFTWARE: Microsoft 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 09/479,249
FILING DATE: 2000-01-07
FILING DATE: 2000-04-27
FILING DATE: 2000-04-27
APPLICATION NUMBER: US 09/578,063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 2000-05-24
PRIOR APPLICATION NUMBER: US 09/333,159
PRIOR FILING DATE: 1999-06-14
PRIOR PRILING DATE: 2000-07-14
PRIOR FILING DATE: 2000-07-14
PRIOR APPLICATION NUMBER: US 09/342,364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PILING DATE: 1999-06-29
APPLICATION NUMBER: US 09/608,452
FILING DATE: 2000-06-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 343, Application US/09759130B Publication No. US20030022279A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                               Query Match 2.7%;
Best Local Similarity 45.7%;
Matches 111; Conservative C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mackay, Charles R
Myers, Paul S
Leiby, Kevin R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Wrighton, Nicolas
Goodearl, Andrew
                                                                                                                                                                           TYPE: DNA
COGGANISM: Bacillus subtilis
US-09-891-641-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kirst, Susan J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   810 CTG 808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          512 CCG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JS-09-759-130B-343/c
                                                                                                                                SEQ ID NO 35
LENGTH: 1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT PRIOR AP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
```

ö

Gaps

셤

g

ð

ô

```
CC.CYY.TYBITMM..A.H.HSAM.S.SSS.SN...S.SBST.H.HSSTWYTYMSBSKM 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           282 M.T.MYCY. MMBSBHSHSSSSSSSSSSSTSYTKTB...MTCHSHTMSHSHSTS.TWMMMY 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            637 AGCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCATGTC 696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 642 YBSHD.H.SSCGY.C.SHYC..D.MH.TS.CM.SAT.CNB.TS.HAS.MH.TM...T..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               522 ATBBHANM...SAB..AC...TN.GYMBH.SHBM.T.M..SD.M..M.BS..MMM.B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCAGGCGTGGATATGCAGGGGTAACGGTCGCATGGCTTCATTATGCAATGCGGGCCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REPERBORG: P3430R1C217
CURRENT APPLICATION NUMBER: 105/10/184,634
CURRENT FILING DATE: 2002-06-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     337 CGGTCCATGCAGACACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTGTAATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            397 CATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CI...CI.M..TM.W.KCIMNBM.BI..M.C.BYSM.YARB.TIM.KBHMNIMRYY.MM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                457 CCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          517 AGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGCTCATTCCCAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCCGGCGCCCACCACGAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTTTTCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCTGATGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCAGGCGTGGATATGCAGGGTAACGGTCGCATGGCTTCATTATGCAATGCGGGCCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         342 .YY.....YYYT.HYYMW.S.YHB.HSHSHSSSS.Y.M.MYCY.M...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 671;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Prior Application removed – See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 6.5%; Pred. No. 5;
Matches 33; Conservative 171; Mismatches 302;
                                                                                                                   817 CGAAACCCGGTGGAATAACCGTTACC 842
                                                                                                                                               T. AMYM. CSNHSSMHSHSHS. KYHS 137
                                                                                                                                                                                                                                                                           Sequence 346, Application US/10184634 Publication No. US20030068684A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pan, James
Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                          Desnoyers, Luc
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; TYPE: PRT
; ORGANISM: Homo Sapien
US-10-184-634-346
                                                                                                                                                                                                                                                                                                                                                                       Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 346
                                                                        222
                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                               g
                                                                                                  · ŏ
                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                            APPLICANT: Desnoyers, Luc
APPLICANT: Goddard, Audrey
APPLICANT: Goddard, Audrey
APPLICANT: Goddowski, Paul J.
APPLICANT: Gurney, Austin L.
APPLICANT: Ban, James
APPLICANT: Smith, Victoria
APPLICANT: Watanabe, Colin K.
APPLICANT: Wood, William I.
APPLICANT: Zhang, Zenin
APPLICANT: Scrib Scrib Scrib
APPLICANT: APPLICATION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVERTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND CURRENT APPLICATION NUMBER: US/10/184, 644
CURRENT APPLICATION NUMBER: US/10/184, 644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              397 CATCAGGGATCCCGCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAG 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACACTGGCAATCCGGT 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTCTGTCTGCTGACGCAGACGTGCTTCGTATTCTTCACGCCCGGCGCCCACCACGAGCC 636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SHSSS..CYCYCMYCYMMB..HH.Y..HCSSCCSCY.T.CYHTY.YYY.M..M...Y 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCGAAATGATTTCCCTTCCATCTTCAGCTGATACAATACACGCAGCATAAATTCATGTC 696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      342 .YY .....YYYYT ...YYYYT.HYYMW.S.YHB.HSHSHSSSSS.Y..M.MYCY.M... 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTTTTCGGGACGTAGCATCCCCACCTGAACGATAAGCGGAACATTGTCTGCTGATGCAG 756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               282 M.T.MYCY...MMBSBHSHSSSSSSSSSTSYTKTB...MTCHSHTMSHSHSTS.TMMMMY 223
396 ACAICAGGGAICCCGCCCGICTCACTGGCGAIAACGGGCACGCCGGAGACTGACGCTICA 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    337 CGGTCCATGCAGACACCATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGA 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     517 AGACCGGTAACGCTGGGAAAAGGGCACCTGCCATTAACACATCTCCGGTCATTCCCAGGT
                                                                                           GCCAGTACCATACCAAACGCTTCATTTTCCGAAGGCATGACCACCACCACTGGCAATCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 671;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     33; Conservative 171; Mismatches 302; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 9;
                                                                                                                                                                                                              2.7%; Score 31.6; 5.5%; Pred. No. 5;
                                                                                                                                                                                516 TAGACCGGTAACGCTGGGAAAAGGGCA 542
                                                                                                                                                                                                                                                                                                                                         Sequence 346, Application US/10184644
Publication No. US20030044930A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 2.7%;
Best Local Similarity 6.5%;
                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT
ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                       Chen, Jian
                                                                                                                                                                                                                                                                                                 RESULT 47
US-10-184-644-346/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-184-644-346
                                                                                         456
                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
```

ö

Gaps

456 523 516 463 576 403 636 343 283 756

a

ò 셤 ç

g ð

ö

셤 ò 8

엄 à 816

```
2478 GCCCGTGCGACATGCGATGACGGCTTGCCTGCGTGCAAGGCCTCTGAAACCTTTACTTC 2419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2598 CATCGTGTCATACAGGTCCTCGTCGTGTACAAGTCGAGCATGTGCTGCGCAACTGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    290 CATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCAGTGCGCCGGTCCATGCAGA 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         350 CACATCCCCCACGGGTAACAGCGTCCCTGTCAATTCTTCTGAATGACATCAGGGATCCC 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              410 GCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACC 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2538 GITGICGCCCGGCTCGCAGAGIATCCGCTCTTTCCATGCTCAATCTGCAGCGGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2418 GAAGCCCTCACGCGTCGAGAGCTGTAGCGCGAACTTCGCATT 2377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       470 AAACGCTTCATTTCCGAAGGCATGACCACCACACTGGCAAT 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 31.6; DB 10;
Pred. No. 13;
0; Mismatches 119;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Search completed: June 19, 2003, 06:35:47
Job time: 311.567 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.7%;
Best Local Similarity 46.4%;
Matches 103; Conservative
                     PatentIn version 3.0
                                                                                                            ORGANISM: Grifola frondosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION: (2809)..(2811)
NAME/KEY: terminator
LOCATION: (2815)..(2817)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . (2356)
                                                                                                                                                                                                                                                                                                                                                             ..(1228)
                                                                                                                                                                                                                                                                                                                                                                                                        (1282)..(1350)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (1872)..(1928)
                                                                                                                                                                                                                                                                                                                1044)..(1160)
                                                                                                                                                                                                                                                                                                                                                                                                                                                  (1551)..(1618)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: terminator
                                                                                                                                                                          (65) ... (1
                                                                                                                                                                                                                                                     ntron
                                                                                                                                                                                                        ntron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ntron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (2300)
NUMBER OF SEQ 3
SOFTWARE: Pater
SEQ ID NO 4
                                                                  2817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-381-624A-4
                                                                                            TYPE: DNA
                                                                                                                                                                                   COCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 4, Application US/09381624A
Patent No. US20020068349A1
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Horinouchi, Sueharu
APPLICANT: Takahashi, Eisahan
APPLICANT: Takahashi, Eisahan
TITLE OF INVENTION: TEANSFORMANT TRANSFORMED BY THE GENE, AND METHOD FOR PRODUCING F
TITLE OF INVENTION: TRANSFORMANT TRANSFORMED BY THE USE OF TRANSFORMANT
TITLE OF INVENTION: TREHALOSE PHOSPHORYLASE WITH THE USE OF TRANSFORMANT
                                                                                                                                                                                                                                                                                             APPLICANT: Saitch, Kohki
APPLICANT: Takahashi, Eisaku
TITLE OF INVENTION: GENE ENCODING TREHALOSE PHOSPHORYLASE, VECTOR CONTAINING THE GENE
TITLE OF INVENTION: TREHALOSE PHOSPHORYLASE WITH THE GENE, AND METHOD FOR PRODUCING F
TITLE OF INVENTION: TREHALOSE PHOSPHORYLASE WITH THE USE OF TRANSFORMANT
FILER REFERENCE: FJIN-100
CURRENT APPLICATION NUMBER: US/09/381,624
PRIOR APPLICATION NUMBER: US 09/381,624
PRIOR FILING DATE: 1999-12-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1986 CATCGTGTCATACAGGTCCTCGTGTACAAGTCGAGCATGTGCTGCGCAACTGCTGC 1927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         290 CATCATCCGGAAGCGTTCCGGTCGGGATAAAAATCGCGCGGTGCGCCGGTCCATGCAGA 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 410 GCCCGTCTCACTGGCGATAACGGGCACGCCGGAGACTGACGCTTCAGCCAGTACCATACC 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            350 CACATCCCCCACGGGTAACAGCGTCCCTGTCACATTCTTCTGAATGACATCAGGGATCCC 409
    222 CC..CYY.TYBTTMM..A.H.HSAM.S.SSS.SN...S.SBST.H.HSSTMYTYMSBSKM 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 2199;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1806 GAAGCCCTCACGCGTCGAGAGCTGTAGCGCGAACTTCGCATT 1765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           470 AAACGCTTCATTTTCCGAAGGCATGACCACCACCACTGGCAAT 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 31.6; DB 10;
Pred. No. 11;
0; Mismatches 119;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILE REFERENCE: FJIN-100
CURRENT APPLICATION NUMBER: US/09/381,624A
CURRENT FILLING DATE: 1999-12-15
PRIOR FILLING DATE: 1999-12-15
                                                 817 CGAAACCCGGTGGAATAACCGTTACC 842
                                                                             162 .T.AMYM.CSNHSSMHSHSHS.KYHS 137
                                                                                                                                                                                                    Sequence 5, Application US/09381624A Patent No. US20020068349Al GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn version 3.0
                                                                                                                                                                                                                                                                             APPLICANT: Horinouchi, Sueharu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 46.4;
Matches 103; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Grifola frondosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 : NAME/KEY: terminator
: LOCATION: (2197)..(2199)
US-09-381-624A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 50
US-09-381-624A-4/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
         g
                                                      ŏ
                                                                                              a
```

ö

Length 2817; Indels